Factors influencing the selection of multi-age programs in the United States

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FACTORS INFLUENCING THE SELECTION OF
MULTI-AGE PROGRAMS IN THE UNITED STATES

A DISSERTATION
SUBMITTED TO THE FACULTY OF CLARK ATLANTA UNIVERSITY
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THE DEGREE OF DOCTOR OF EDUCATION

BY
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ABSTRACT
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FACTORS INFLUENCING THE SELECTION OF MULTI-AGE PROGRAMS IN THE UNITED STATES

Advisor: Dr. William Denton
Dissertation dated May, 2000

The purpose of this study was to determine factors that have influenced decisions made by principals and teachers to initiate multi-age classrooms in the United States. A descriptive research design was utilized for the purpose of this study. Principals and teachers who had implemented multi-age programs were mailed a questionnaire. Three hundred fifty-seven principals and teachers responded.

Data were collected and analyzed to determine if principals and teachers differed in their perception of the factors that may have influenced the selection of multi-age classrooms. Five statistical tests were used to evaluate the hypotheses. An alpha level of .05 was used for hypothesis testing. Statistical analyses revealed that principals and teachers held the same level of perception about the selection factors of retention, student achievement, social development and developmentally appropriate practices, regardless of their school size or its location. Principals
and teachers rated each selection factor as important; however, social development and developmentally appropriate practices were rated higher than retention and academic achievement.

Principals and teachers should not expect this organizational and structural method alone to solve all of the educational problems of today. The practice of multi-age grouping must be thoroughly researched along with developmentally appropriate practices and the effects of retention on student achievement and social development.
ACKNOWLEDGEMENTS

Without the constant support of my colleagues at Bowdon Primary School, my committee, and my family and friends, the completion of this paper would not have been possible.

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My grandparents, George and Annie Foster, instilled in me the importance of an education and look down from heaven and say "well done."

My husband, Garry, tolerated me during this endeavor as it became a reality.

May God bless each and every person that He brought into my life that made this dream come into fruition.
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CHAPTER I
INTRODUCTION

Most children in the United States attend elementary schools that are organized by age into grade levels. Bacharach, Hasslen, and Anderson (1995) suggested that this organizational plan is based on the assumption that same-age children are at the same level of development, acquire similar knowledge in the same manner at the same time, and will progress at the same rate. Children entering schools today are expected to conform to the demands of the structured environment and inflexible curriculum, rather than having their individual needs met. The teacher's role in this type of classroom setting is to instill a predetermined body of knowledge to students by the end of the school term.

William Miller (1995, 28) concluded that the age-grade classroom is based on three assumptions:

1. Students of the same chronological age are ready to learn the same objectives.

2. Students require the same amount of time, as in an academic year, to master predetermined content.

3. Students can master predesigned objectives for a grade level for all curricular areas at the same rate.
Miller (1995, 29) added, "Grouping students strictly by age does not reflect a naturalistic lifelike setting in which people of different ages learn from each other." He concluded, "The practice of grouping by age and grade may be creating a significant barrier to meeting the goals of equity and instructional excellence in schools" (28).

Katz, Evangelou, and Hartman (1990, 4) agreed that single-age grades do not allow for developmental differences between children:

Single-age groups seem to create enormous normative pressures on the children and the teacher to expect all the children to be at the same place on knowledge and skills. There is a tendency in homogeneous age groups to penalize the children who fail to meet normative expectations. Similarly, there is no evidence to show that a group of children who are all within a 12 month age range can be expected to learn the same things, the same day, at the same time.

Societal changes are causing schools to rethink current educational practices. According to Bacharach, Hasslen, and Anderson (1995), Gaustad (1992), and Cotton (1993), many children are coming to school unsettled, unable to concentrate or cooperate, with television images of how life is lived, and not knowing what it is to be interested in something for more than twenty minutes at a time. Since schools cannot teach children all the factual knowledge they will need to know in their lives, the task of education now is to prepare children not only to be survivors in society, but also to become contributing members who can adapt to changes and diversity. This, said Gaustad (1992), means that
the primary goals of education must be teaching children how to learn, how to think critically, how to communicate effectively, and how to solve problems as they emerge.

A review of educational research indicates that one of the emerging alternative organizational structures that may allow students to gain greater educational benefits is multi-age grouping. This concept is not new. According to Miller (1990), it dates back to the "one-room school" that was the norm until phased out in the early 1900s. In such a setting, children of different ages learned together.

Gaustad (1992) and Stone (1997) defined multi-age grouping as the practice of deliberately mixing children of different ages and ability levels in the same classroom, without dividing curriculum into steps labeled by grade designations. These children are more than one year apart in age and stay with the same teacher for several years. Children in this setting progress through the curriculum at their own rate without fear of failure. Teachers in this setting are viewed as facilitators whose role is to guide the students to achieve more than they would normally achieve.

Multi-age grouping creates a structure that allows educators to fit the schools to children rather than fitting the children to the school. Therefore, according to Stone (1997), multi-age classrooms are learning atmospheres that exist solely for the benefit of the child. Other terms used
to describe this organizational pattern that groups students of different ages together are mixed age, nongraded or ungraded, family grouping, split grade, heterogeneous grouping, vertical grouping, and primary nongraded (American Association of School Administrators 1992).

Educators are seeking out multi-age classrooms as a viable option to traditional same age, same grade classrooms. Innovative principals and teachers have embraced the new philosophy behind the concept of multi-age grouping by piloting multi-age classrooms in their local surroundings. Why? Some factors suggested include grade retention, academic achievement, social development, and developmentally appropriate practices.

Retention. In a graded system of education, the child who masters the grade-level skills is a success; the child who does not master the skills is retained. In a multi-age classroom, children learn on a continuum from simple to more complex material at their own pace. This allows children to make continuous progress rather than being promoted once a year to move forward in the curriculum (Gaustad 1992, Katz 1992). Chronological age and mental age do not always correspond. A child may excel in one area and experience difficulty in another. Each child is a unique individual within a classroom of children with different
needs. Therefore, an organizational pattern such as multi-age grouping is success oriented, avoiding the problems associated with retention (Bredekamp 1996, Privett 1996).

According to Reynolds, Temple, and McCoy (1997), regardless of the number of studies in the past thirty years that show the negative effects of retention on children, more and more children are being retained. In President Clinton's 1997 State of the Union Address, he encouraged the nonpromotion of students who earn low scores on standardized tests. He indicated that test scores should determine if a child is ready for the next grade, therefore ending social promotion.

**Achievement.** Anderson and Pavan (1993) reviewed sixty-four studies and concluded that on achievement tests children in the nongraded groups perform as well as or better than children in graded groups. In synthesizing the findings of decades of studies comparing the achievement of K-6 students in both nongraded and traditional arrangements, Guiterrez and Slavin (1992) concluded that the achievement of students in nongraded programs is equivalent to or greater than that of students in graded programs.

**Social development.** Another advantage to multi-age grouping is in the affective domain. In a study conducted by Milburn (1981), children of all ages in multi-age grouping had a more positive attitude toward school than did their counterparts in the grade-level grouping. When measures of
student attitude toward self, school, or peers are compared across a range of schools and geographic areas, results favor multi-age grouping. Barbara Pavan (1992) reviewed the research that compared the effectiveness of graded and nongraded schools. Findings indicated that students in nongraded schools were more likely to have a more positive self-concept, higher self-esteem, and better attitudes toward school than students in graded schools.

**Developmentally appropriate.** According to Charlesworth (1998), developmentally appropriate practice refers to a child-centered approach to instruction that views the child as the primary source of the curriculum and recognizes children's unique characteristics. Bredekamp (1996) stated that developmentally appropriate schools are flexible in their expectations about when and how children will acquire certain competencies. In a multi-age classroom "instruction, learning opportunities, and movement within the curriculum are individualized to correspond with individual needs, interest, and abilities," noted Anderson and Pavan (1993, 62). A multi-age classroom, just like developmentally appropriate practices, emphasizes the whole child while taking into account gender, culture, socioeconomic status, family factors, development level, and learning style.
Purpose

Public outcry concerning the state of education in the United States has caused educators to consider methods of restructuring schools that nurture the total child: the mind, the body, and the spirit. The multi-age classroom is a conceivable alternative to the traditional graded method of educating children. According to Miller (1994), the multi-age classroom has traditionally been an important and necessary organizational pattern of education in the United States. Therefore, the purpose of this study is to determine factors which have influenced decisions by principals and teachers to initiate multi-age classrooms.

Background

Schools have not always been dominated by the age/grade structure. This organizational structure was initiated close to 150 years ago. In colonial America, the first form of schooling occurred in the home by the parents. Dame schools were available when parents could not instruct their children. Dame schools were the first forms of home school and were for very young children. Classes were held in the kitchen or any available room of some local housewife for a small fee (Ellis, Cogan, and Howey 1981; Pulliam and Patten 1995). Instruction in dame schools differed little from that found in the home setting. In this setting, children as young as three associated with children as old as ten. Each
child received individual instruction in reading and religion (Goodlad and Anderson 1987). By the beginning of the eighteenth century, dame schools were a source of "formal" education for many children.

The "moving" school was another type of school that emerged during the colonial period. In the "moving" school, children attended school only when the teacher and school came to the district. In this setting, there would be a lapse between school terms, and the children would pick up where they left off in their studies (Meyer 1967).

The "moving" school lost ground to the district school. Using a scheme, each township arranged itself into districts with each district having its own school. The school existed on the disbursement the district made to the town treasurer. The district school rose upon the scene because of the voice of the people that wanted some measure of schooling for every child. The district school survived in rural areas well into the twentieth century because it was very inexpensive to operate (Meyer 1967).

These early forms of education in America might have been uninspiring and tedious, but instruction was highly individualized. Schools were small; eight or nine children constituted the entire school. Teachers had no formal training, and the curriculum consisted only of what reading and "ciphering" the teacher was capable of teaching. Since attendance was sporadic, the teacher would begin at the
point where instruction was last interrupted (Goodlad and Anderson 1987). The essence of the dame, moving, and district schools existed in innumerable little red schoolhouses across America where children of various ages attended a school for instruction by the same teacher. The urban counterparts of the one room schools were the Lancaster Schools (Miller 1991).

In the mid-1800s, age/grade instruction originated when Secretary of Massachusetts Board of Education Horace Mann visited Prussia and was impressed by the educational system. This system worked well in the wake of the industrial and urbanization revolution where a mass number of children had to be educated. The graded system established by Mann was based on the factory model where learning was rigid in manner (Gaustad 1992).

In 1848, the Quincy Grammar School of Massachusetts officially marked the emergence of the graded educational structure in the United States. Children were sorted into grades by ability and either passed or failed at the end of a year (Spring 1986, Wallace and Graves 1995). Another development that influenced the movement toward the graded educational system was the appearance of the textbook (Miller 1991). During this period, educational leaders were more concerned with the management and standardization of schools than with student learning. By 1860, the graded system was widely embraced and adopted in America,
especially in cities. Thus, the move away from nongraded education occurred.

After the Civil War, schools took a more defined and uniform structure of eight levels or separate grades. The reading textbook series written by William McGuffey symbolized and reinforced the national system of uniform education. According to Pulliam (1968), Johann F. Herbart set the stage that led to the rigid “lock-step” system of education in America. Herbart believed that children needed to build on the ideas which were already in place and that they must consciously associate new ideas with previous experiences. Each grade level would supply material to children that would build upon previous learned materials.

Approaches appeared that challenged the foundation of graded education. One such approach was the Montessori method. Maria Montessori’s success in overseeing the Children’s House in Rome revealed that children could make educational gains in a nongraded situation. Classes in the Children’s House focused on individualized instruction and were purposefully composed of students aged three to seven. This configuration granted opportunities for younger children to learn by observing older children. According to Merrick (1996), by 1913 Montessori’s method became a trend in America and Europe that replaced some graded schools. In the United States, Montessori schools centered on the idea that students learn at their own rate. The graded system
again prevailed around 1918, and the Montessori method decreased (Merrick 1996).

In more recent times, educators' dissatisfaction was followed by public dissatisfaction when the Soviets launched Sputnik in 1957. This caused a reexamination of the educational system in the United States. The Nongraded School by Goodlad and Anderson (1987) set the pace for the advantages of nongraded education over graded. Several innovative programs emerged during this period, including team teaching, individualized instruction, and the British-based "open education" system. This system is similar to nongraded education and helped spread nongraded programs in the 1960s and early 1970s in the United States.

Beginning in the early 1980s, dissatisfaction with ineffective reforms and numerous reports calling for school improvements prompted a return to traditional graded instruction. Thereafter, only a few scattered schools and classrooms maintained the nongraded approach (Gaustad 1992). There were less than 1,000 of the schools in existence in 1980 (Muse, Smith, and Barker 1987). No current data exist on how many multi-age or nongraded classrooms are actually in existence today.

The nongraded education of the 1990s is more clearly developed than during previous times. Research on child development and learning has given nongraded education a stronger foundation. Organizations such as the National
Association of State Boards of Education, the National Association of Elementary School Principals, and the National Association for the Education of Young Children support developmentally appropriate practices that are the foundation for the current multi-age movement (Gaustad 1992).

Statement of the Problem

Many of today's schools are being accused of failing to meet the needs of the diverse population of students they serve. An awareness of the limitations of graded education and the possible benefits of multi-age groupings has left educators with the realization that children's uneven developmental patterns and differing rates of progress are ill-matched with the current educational organizational structure (Katz 1992, Stone 1995, Willis 1991). There are schools in the United States that use the multi-age grouping concept. Principals and teachers have selected this organizational pattern. Why? What factors led them to this dramatic organizational change? In particular what was the effect of retention, student achievement, social development, and developmentally appropriate practices in the decision of selecting multi-age grouping? In addition, do the school variables of size (small or large) and location (urban, suburban, or rural) influence the selection of these factors?
Significance of the Study

Currently in most American schools, by third grade most classroom rolls will reveal a spread of three years, not twelve months (Connell 1987). This occurs because some children have been retained. This decision is traumatic for the individuals involved (Connell 1987). According to a study by Roderick (1995), from 1980 to 1992 the national percentage of retained students increased from approximately 20 percent to nearly 32 percent.

Research on student development over the years has yielded information on children that indicate that all children learn at different rates and in different ways. Lolli (1993) indicated that today's school organization is based on a factory model of uniformity that does not give children the time and opportunity to develop at their own pace and works against what research tells the educator about how children learn. On the opposite end is the multi-age system that embraces a developmental view of learning. In the multi-age setting, the environment is structured over a period of time to support the child's natural development. The focus is on giving every child the opportunity to be successful and become a lifelong learner (Stone 1997).

Research on the practice of multi-age grouping illustrates that it may yield benefits for students in the affective and cognitive domains. Multi-age grouping may be an important tool to improve the quality of education in the
United States. Gathering quantitative information concerning factors that may affect the selection of multi-age grouping that can assist educators who are exploring alternative options to the traditionally same-age, same-grade pattern of organizational structure that exist in the educational arena. Gathering information about how principals and teachers feel about establishing multi-age grouping can help other educators who are exploring this type of grouping. Information on the size and location of these schools may also be helpful. No current information exists about what helps principals and teachers make a decision to switch to multi-age grouping. Thus, the goal of this research is to add to the body of information on selected factors and school variables for multi-age grouping. The majority of research about multi-age grouping was conducted in the late 1970s and the early 1980s and compared achievement in multi-age classrooms and graded classrooms.

Research Questions

Questions that were developed to help the researcher obtain information regarding the study were as follows:

1. What factors influenced principals in their selection of multi-age grouping?

2. What factors influenced teachers in their selection of multi-age grouping?
3. Do principals and teachers differ in their perception of factors that influenced the selection of multi-age grouping in their schools?

4. Does the school size influence the factors that lead to the selection of multi-age grouping?

5. Does the school location influence the factors that lead to the selection of multi-age grouping?

Summary

Multi-age grouping is a method of restructuring to improve student achievement and social skills. In a multi-age classroom, students of different ages and ability levels are grouped together. This method of structuring existed from the colonial American period until the increased industrial development and the large influx of immigrants caused the development of graded education. This chapter has presented an introduction to the study, a statement of the purpose of the study, the background of the problem, the statement of the problem, the significance of the study, and the research questions. In Chapter II a review of the literature related to the research topic is presented.
CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The American educational restructuring movement of the 1990s has caused educators to search for alternative organizational patterns. Multi-age grouping is one organizational pattern that has reemerged. Gaustad (1992) defined multi-age grouping as the practice of teaching children of different age and ability levels in the same classroom, without dividing curriculum into steps labeled by grade designations.

A computerized literature search revealed limited current information on multi-age grouping. The literature that was examined dealt with the issues of grade retention, academic achievement, social development, and developmentally appropriate practices as they relate to multi-age grouping. These may be factors that influence principals and teachers when they selected multi-age grouping.

Retention

In a multi-age setting, children are able to work at different levels without obvious remediation, thus avoiding
the social and emotional damage typically caused by retention. Retention is the process of having a child who has failed to master the curriculum requirements at an acceptable level of proficiency repeat that grade. According to Roderick (1995), no precise national estimate of the proportion of youths that experience grade retention exists. However, the Center for Policy Research in Education (1990) reported that by the ninth grade approximately 50 percent of all United States students have been retained. According to Darling-Hammond (1997), four million students were retained in 1994. Setencich (1994) estimates that every year 2.4 million students are retained in a grade for a variety of reasons.

According to Norton (1983), the following reasons are often given for retention:

1. Retention improves students' academic performance by giving them an extra year to master the material that was not learned the first time in that grade.

2. Retention causes students to be successful and thus creates within them a sense of enhanced self-esteem.

3. Retention reduces the range of abilities and achievement levels in classrooms and brings students closer to their peers in relation to learning.

4. Retention serves as a motivational incentive for students to strive to do better in school.
5. Retention gives the immature student a year to grow and mature, thus insuring success in learning.

According to the National Association of School Psychologists (1998), those at the highest risk for retention are students who are male, Black or Hispanic, have a late birthday, have delayed development, have parents with low educational attainment, come from single-parent households, live in poverty, have attention problems, or have changed schools several times. Sakowicz (1996) also described those being retained as frequently absent, performing poorly on a prescreening assessment, possessing limited English language skills or a high energy level, or having parents who are unwilling or unable to intercede for the child.

The majority of research indicates that retention is not beneficial. An example of this is a study conducted by Jimerson et al. (1997). Jimerson and his colleagues examined the issue of retention by using a comparison group of low achieving students and by gathering data longitudinally. The study also explored and clarified the effects of retention on achievement and adjustment throughout the elementary years and again at the age of sixteen.

The subjects were selected from children participating in the Minnesota Mother-Child Interaction Project. This project was a longitudinal study of children at risk for problems in social and emotional development. The
subjects were divided into three groups: a retained group, a low-achieving promoted group, and a control group. The retained group consisted of thirty-two children who were retained in Grades K-3. The low-achieving promoted group consisted of fifty children who were selected on the basis of low academic achievement, allowing the researcher to identify a group of children functioning similar to retained children in terms of academic achievement. The control group consisted of twenty-five randomly selected subjects who were not already in the other groups and for whom complete data could be obtained (Jimerson et al. 1997).

Assessment batteries were completed on the subjects during kindergarten, first, second, third, and sixth grades and again at the age of sixteen. Assessment batteries included teacher interviews and checklists, the Peabody Individual Achievement Test, the Wechsler Preschool and Primary Scales of Intelligence, the Wechsler Intelligence Scale for Children-Revised, the Woodcock-Johnson Achievement Test-Revised, and mother or primary caretaker interviews (Jimerson et al. 1997).

The study revealed the following characteristics related to retention: (1) males were more likely to be retained than females, (2) retained students missed a significantly greater percentage of school days, (3) retained students displayed more maladjusted behaviors in the classroom, and (4) mothers of retained students displayed lower
levels of cognitive functioning. The study also concluded that behavior problems worsened for retained students. The study also indicated that students continued to exhibit poor social adjustment relative to peers. The major finding of this study was that retaining students does not benefit them academically and is therefore ineffective (Jimerson et al. 1997).

Roderick (1995) and Sakowicz (1996) indicated that most children are retained in the primary grades. To examine this matter, Thomas et al. (1992) conducted a study on the relationship between retention and long-term functioning of kindergarten and first-grade students. The study assessed long-term academic achievement, teacher-reported prosocial competence, cognitive competence, and internalizing and externalizing problems. Thirty-one children who had been retained were compared to thirty-one children who had similar grades but had never been retained. Twenty-nine of the participants were in the fifth grade and thirty-three were in the fourth grade when the data were collected for this study. Chi-square analysis indicated that there was no significant difference between the retained and the non-retained group in terms of race, gender, or grade point average.

The results of the study indicated that retention does not facilitate academic or social functioning of kindergarten or first-grade children. The study revealed
that white children, in particular, fared less well academically and in terms of teacher-perceived social and cognitive competence than their comparison group of non-retained students. The retained students were also viewed as having more internalizing problems than those who were promoted (Thomas et al. 1992). This study is also in general agreement with existing literature on retention such as studies by Mantzicopoulos (1997), Shepard (1989), Shepard and Smith (1986), and Turley (1979) that retention is not a beneficial educational intervention for children.

The proportion of children promoted from one year to the next is largely determined by school systems' promotion policies and by teachers' and principals' attitudes regarding the benefits of retention (Setencich, 1994). According to Sakowicz (1996), most schools have vague policies regarding retention, and the decision typically falls on the classroom teacher. Most teachers support retention because they believe it is an effective remedial strategy.

Tanner and Combs (1993) conducted a national study to determine teachers' perceptions regarding retention. The study viewed first- and fifth-grade teachers' perceptions and understandings regarding retention. First and fifth grades were selected so that any differences between early and later elementary teachers' opinions could be assessed. Findings from this study revealed that teachers believe retention gives underachieving students a chance to catch up
academically; retention harms self-concept; and retention is an effective means of giving immature students a chance to grow and mature, thus increasing success. The study also revealed that a teacher's belief about retention is not related to knowledge of educational research on the topic. Another conclusion was that there is or may exist an unwritten policy, hinging on beliefs among teachers in the United States, regarding retention. The bulk of literature on retention is not reaching the educators who make the decisions about retention.

In summary, the majority of the research on retention indicates that it is a questionable educational practice. However, thousands of students in this country are retained each year. Other options are available for children who are caught in the dilemma of retention (National Association of School Psychologists 1998).

Achievement

Proponents of multi-age grouping believe that this organizational structure influences academic achievement of students. Currently, there is a limited body of research on the effects of multi-age grouping on the academic achievement of students in this educational setting. Miller (1990) reviewed twenty-one quantitative studies comparing the effects of multi-grade with single-grade classroom organizations on student cognitive and affective outcomes. Nearly
half of the studies reviewed were conducted during the 1960s and 1970s. Thirteen of the studies focused on academic performance. The results indicated that there is little or no difference in achievement in students in single or multi-grade classrooms. All the studies reviewed indicated that being a student in a multi-grade classroom does not negatively affect the academic performance. The data concerning academic achievement clearly supports the multi-grade classroom as a viable and equally effective option to single-grade instruction.

Gutierrez and Slavin (1992) synthesized the findings of several decades of research comparing achievement effects of nongraded and traditional organizations in the elementary grades (K-6) using a best evidence synthesis. The results of this analysis, according to standardized measures of student achievement, indicated that students in nongraded programs are equal to students in traditional programs. In other words, the nongraded organizational pattern can have a positive effect on student achievement. A possible explanation for the findings of this study is that nongraded programs result in more time with the teacher and less heterogeneity in instructional groups, resulting in higher achievement for students. These researchers believed that more time with the teacher and less heterogeneity are critical for younger students to progress sufficiently (Gutierrez and Slavin 1992).
Anderson and Pavan (1993) reviewed sixty-four studies published between January 1968 and December 1990, comparing nongraded and graded students. Results revealed that 64 percent favored nongradedness, 27 percent indicated that graded and nongraded students performed in a similar manner, and 9 percent found that the nongraded student did not perform as well as single-grade students. Fifty-seven of the studies reviewed used standardized achievement tests to compare graded and nongraded students. Of those fifty-seven research studies, 91 percent indicated that the nongraded groups performed better or as well as the graded group on measures of academic achievement. Seventeen longitudinal studies were also included in this review. Sixty-nine percent of the longitudinal studies favored the nongraded setting, with advances increasing over time.

Veenman (1995) conducted another best evidence synthesis analysis of research into the effects of multi-grade/multi-age groupings on cognitive effects of students. The results of this analysis revealed that the students in the multi-age classroom did not learn more or less than the students in the single-age classes. Simply put, multi-age classes are no worse or no better than single-grade or single-age classes.

In recent investigations, Mackey, Johnson, and Wood (1995) conducted a study comparing the cognitive and affective outcomes between an experimental group of multi-age
students and a traditional graded group of students. The experimental group consisted of seventy-three monolingual students and thirty-nine bilingual students. The control group was composed of sixty-four monolingual and thirty bilingual students. Both groups were administered a pretest and a posttest to measure cognitive and affective development. A holistic scoring (writing assessment) and a performance-based test (reading assessment) measured cognitive domain. A teacher-developed affective instrument measured the affective domain. Students who did not take both the pretests and the posttests were excluded from the analysis. The findings of this study revealed that the experimental multi-age group outscored the control group on the reading and writing posttest. This was especially true for older and bilingual students. It would appear from the results of this study that older, at-risk students benefit from multi-age grouping, especially in the area of language arts instruction.

Matthew, Monsaas, and Penick (1997) investigated the impact of the nongraded instructional organization pattern on reading and language development of kindergarten through second-grade children considered at-risk for school failure. One hundred seventeen students in six classrooms were the participants in this study. Sixty-one students were in three nongraded classrooms. Fifty-six students were in three graded classrooms. Standardized measures were used to assess
the students, along with additional data gathered from a story retelling procedure. Findings indicated that no significant differences were found between the experimental group and the control group on their performance on the retelling measure used to assess reading comprehension, on the Peabody Picture Vocabulary Test-Revised used to assess receptive language ability, or on measures of language complexity.

In summary, a majority of the research on multi-age grouping favors the use of this organizational structure. Research indicates that multi-age grouping is a structure that promotes higher achievement scores. Nongraded groups perform as well as and possibly better than graded groups on achievement tests geared for the graded school. At-risk students appear to benefit the most from multi-age grouping.

Social Development

Katz, Evangelou, and Hartman (1990) in the book *The Case for Mixed-Age Grouping in Early Childhood* examined the research on social development of multi-age students before 1990. This research revealed that children of different ages differentiate their behaviors and vary their expectations, depending on the ages of the participants. Prosocial behaviors such as helping, sharing, and taking turns are enhanced in the younger children, thus increasing their socialization skills. Older children often are encouraged to
remind the younger children of the rules, thus enhancing their self-regulation skills. Older children are also provided with directing and organizing play opportunities, which enable them to practice leadership skills. For some children, leadership is easier among young children than same-age peers. Younger children are given opportunities to join more complex play than they could initiate themselves. Younger children also allow isolated older children opportunities to practice their social skills. Children who had difficulty following rules become more successful in controlling their own behavior after being asked to remind younger children to obey. Children in a mixed-age group demonstrated overall task awareness and showed sensitivity to assuming responsibility for task completion when the group included younger children.

McClellan and Kinsey (1996) conducted an investigation of 649 children that participated in either mixed- or same-age classrooms to determine social behavior of students in their respective classrooms. Other variables included a child's sex, socioeconomic status, gender, the number of children in the classroom, and the degree to which children participated in groups and interest centers throughout the day. These variables allowed the investigators to obtain a better picture of how important the classroom age-range was in predicting social behavior. A pretest was given to the kindergarten level children to determine if preexisting
differences in children predispose their inclusion in a mixed- or same-age classroom. None were found.

Prosocial behaviors, friendship behaviors, and levels of aggression were the three categories of social behavior that were the focus of this study. There was a significant difference between children participating in same-or mixed-age classrooms in all three areas. Results of this study indicated that children of both sexes participating in mixed-age classrooms were significantly less likely to behave aggressively toward other children or to engage in negative behavior such as tattling on other children. The mixed-age classroom revealed an atmosphere where all children were able to find friendship opportunities. Children in the mixed-age classroom produced higher levels of prosocial behavior among children of both sexes. McClellan and Kinsey (1996) concluded from their study that mixed-age classrooms encourage positive social behavior and relationships between children and reduce aggressive and disruptive behavior.

Mackey, Johnson, and Wood (1995) also studied affective outcomes in multi-age language arts programs. The affective aspects of student self-esteem and attitudes toward school were measured by a teacher-developed questionnaire. The questionnaire encompassed a global view of self-esteem and a more specific assessment concerning literacy attitudes. The questionnaire was orally administered. The
experimental group revealed an increase in self-esteem between pretest and posttest. Overall findings of this study suggest that the experimental group did do considerably better on the affective measures.

Anderson and Pavan's (1993) review of studies on nongraded education contained forty-two studies that had mental health and school attitudes components. Children in nongraded schools had a more positive attitude toward school. Students in nongraded programs scored higher than graded students on the Coopersmith Self-Esteem Inventory and the Piers Harris Children's Self-Concept Scale.

Overall, results of this review indicated that 52 percent of the studies revealed that nongraded education is better for students in the area of mental health and attitude toward school. Five percent found nongraded worse. Anderson and Pavan (1993) concluded from this review that students in nongraded schools were more likely to have a more positive self-concept, higher self-esteem, and better attitudes toward school than students in graded schools. Miller (1990), in his review of research, also concluded multi-grade students have more positive attitudes toward school, significantly higher self-concept, more positive social relationships, better sense of belonging, less anxiety toward school, and higher expectations for success. Over 75 percent of the measures used in evaluating student
affect indicated that multi-grade students performed better than single-grade students did.

Pratt (1986) surveyed the results of thirty experimental research studies about multi-age conducted between 1948 and 1983 in the United States and Canada. All studies examined the results of multi-age grouping in elementary schools. The most common social/emotional variables were self-concept and attitudes toward school. The findings suggested that multi-age grouping is associated with better self-concept and attitudes toward school.

According to Burke (1996), children in multi-age classes feel more comfortable and secure than their traditional grade-level mates in the beginning of each year, especially if they are in the second or third year of the cycle. Children in this setting are more willing to participate voluntarily in class, see themselves as important members of the group, and feel pride in the group. The multi-age concept appears to provide a stable, strong support system for children whose lives are riddled with change.

In summary, multi-age grouping appears to be most beneficial for children in the area of social development and attitudes toward school. In this setting children are allowed to progress and establish relationships that enhance their socialization skills. All available research indicates
that children in multi-age settings have better affective domain skills than their graded peers.

**Developmentally Appropriate Practice**

Bredekamp (1987) defined developmentally appropriate practice for the National Association for the Education of Young Children (NAEYC) as a concept with two dimensions: age appropriateness and individual appropriateness.

1. **Age appropriateness.** Human development research indicates that there are universal, predictable sequences of growth and change that occur in children during the first nine years of life. These occur in all domains of development: physical, emotional, social, and cognitive. Knowledge of typical development of children within the age span served by the program provides a framework from which teachers prepare the learning environment and plan appropriate experiences.

2. **Individual appropriateness.** Each child is a unique person with an individual pattern and timing of growth, as well as individual personality, learning style, and family background. Both the curriculum and adults' interactions with children should be responsive to individual differences (Bredekamp 1987, 2).

According to Johnson (1998), developmentally appropriate practices are teaching methods and curriculum components that are based on a child's developmental
abilities. As Katz (1995) stated, in a developmental approach to curriculum design, decisions about what should be learned depend on what we know of the learner's development status and our understanding of the relationships between early experience and subsequent development. Such practices include active learning experiences, various instructional strategies, teacher-directed as well as child-directed activities, and integrated curriculum (Bredekamp, 1996). Developmentally appropriate schools are also flexible in how they group children. They do not adhere to chronological age or grade grouping.

Following is a list of principles that guide decisions about developmentally appropriate practices:

Domains of children's development—physical, social, emotional, and cognitive—are closely related. Development in one domain influences and is influenced by development in other domains.

Development occurs in a relatively orderly sequence, with later abilities, skills and knowledge building on those already acquired.

Development proceeds at varying rates from child to child as well as unevenly within different areas of each child's functioning.

Early experiences have both cumulative and delayed effects on individual children's development; optimal periods exist for certain types of development and learning.

Development proceeds in predictable directions toward greater complexity, organization, and internalization.

Development and learning occur in and are influenced by multiple social and cultural contexts.
Children are active learners, drawing on direct physical and social experience as well as culturally transmitted knowledge to construct their own understandings of the world around them.

Development and learning result from interaction of biological maturation and the environment, which includes both physical and social worlds that children live in.

Play is an important vehicle for children's social, emotional, and cognitive development, as well as a reflection of their development.

Development advances when children have opportunities to practice newly acquired skills as well as when they experience a challenge just beyond the level of their present mastery.

Children demonstrate different modes of knowing and learning different ways representing what they know. Children develop and learn best in the context of a community where they are safe and valued, their physical needs are met, and they feel psychologically safe (Bredekamp and Copple 1996, 10-15).

Charlesworth (1998) reviewed the research on developmentally appropriate practices. He concluded that preschool and kindergarten age children enrolled in less developmentally appropriate classrooms exhibit twice the levels of stress behaviors when compared with those in a more developmentally appropriate program. Children exhibit higher academic achievement, are more motivated, and score higher on behavioral evaluations when they participate in developmentally appropriate programs. Results of the studies that followed students into elementary grades suggested that less developmentally appropriate preschool and kindergarten classroom experiences cause poorer academic achievement, lower conduct and work study habits, more distractibility,
and less prosocial conforming behavior. Developmentally appropriate curriculum promotes equity in developmental outcomes for African Americans and children from socio-economically diverse backgrounds.

Dunn and Kontos (1997), in their research on developmentally appropriate practices, discovered that only about one-fifth to one-third of the early childhood programs fully demonstrated developmentally appropriate practices. They also discovered that the more strongly teachers believed in developmentally appropriate practices, the more likely they were to implement those practices in their classrooms. While some teachers believed in the developmentally appropriate philosophy, their classroom practices were more academically oriented. Dunn and Kontos (1997) learned that parents tend to emphasize school-related skills more than teachers do and that this tendency may be greater for low-income and minority parents. Parents of young children were more concerned about teaching children to count, write, and read and were less concerned about promoting independence.

In summary, developmentally appropriate practices are child-centered approaches to instruction that view the child as the primary source of the curriculum. In this type of program, teachers offer appropriate materials and activities which match the unique characteristics of each child. Cotton (1993) and Theilheimer (1993) stated that
researchers have identified nongraded grouping as one element of developmentally appropriate practice and recommended its use. Developmentally appropriate practices as multi-age honor the individual differences of the learner and provide opportunities so that each child feels successful.

The urgent need to reform urban schools has led to the focus on small schools. According to Cotton (1996), schools continue to get bigger, with the average enrollment rising from 127 to 653. The majority of research examining schools of a variety of levels and sizes revealed that there is a relationship between school size and student success in favor of small schools. Irmsher (1997) and Raywid (1996) summarized some of the recent research findings related to school size. The research revealed that students in high socioeconomic status communities perform better in larger schools, while minority and low-income students benefit more from small schools. Specific benefits of small schools include: (1) better attendance and retention; (2) better behavior, attitude, and engagement; (3) enhanced academic performance; and (4) increased involvement in extracurricular activities. According to Raywid (1996), the staff of small schools provides students with extra attention that affords them greater educational, psychoemotional, and social services as well as making them feel part of a community. Cotton (1996) indicated that small schools are
more likely to form instructional approaches and strategies such as team teaching and multi-age grouping.

Cotton (1996) reviewed 103 documents that identified a relationship between school size and some aspect of schooling. The following are some of the major findings from this review:

1. Academic achievement in small schools is at least equal and often superior to that of large schools.
2. Student attitudes toward school in general and toward particular subjects are more positive in small schools.
3. Students' social behavior is more positive in small schools.
4. Levels of extracurricular participation are much higher and more varied in small schools than large ones.
5. Student attendance is better in small schools than in large ones.
6. Students have a greater sense of belonging and higher self-concepts in small schools than in large ones.
7. Interpersonal relationships between and among students, teachers, and administrators are more positive in small schools than large schools.
8. Grouping and instructional strategies associated with high student performance are more often implemented in small schools. These strategies include team teaching, integrated curriculum, multi-age grouping (especially for
elementary children), cooperative learning, and performance assessments (Cotton 1996, 17-19).

Cotton (1996) also indicated that many small schools are in rural areas and that regardless of the location of small schools they are beneficial to students.

Summary

This chapter has presented a review of the literature as it related to selected factors for the selection of multi-age grouping. Children learn at different rates and in different ways. They are active participants in their learning environment. Principals and teachers understand the differences in child development but continue to group their students by age, test scores, and grade levels. This method of structuring students is changing to one that focuses on the learning styles of individual students.

Some factors that are given for the selection of multi-age grouping are the elimination of the practice of retention, improvement of academic achievement, increased social development, and developmentally appropriate activities. From 1980 to 1992, the national percentage of retained students increased from approximately 20 percent to nearly 32 percent (Roderick 1995). Research indicates that this practice harms a student emotionally and is of no benefit. Multi-age grouping is emerging as an option to this practice. In multi-age grouping, children are allowed to
learn at their own pace, not only enhancing self-concept, but also improving self-motivation and self-directing skills. Multi-age is a child-centered approach to education that believes in meeting the developmental needs of the individual child. Research has shown that multi-age improves student achievement, enhances social development, and is developmentally appropriate.

In Chapter III, the theoretical framework is presented as it relates to multi-age grouping.
CHAPTER III
THEORETICAL FRAMEWORK

The theoretical framework for this study was derived from examining selected variables that relate to factors that cause principals and teachers to select the organizational pattern of multi-age grouping. The research was designed to determine to what degree principals and teachers were influenced by the variables of retention, student achievement, social development, and developmentally appropriate practices. Principals' and teachers' decisions to select multi-age grouping are the dependent variables.

The Role of Theory

The theoretical framework for this study was based on the following three constructivist theorists: Jean Piaget, Lev Vygotsky, and Jerome Bruner. These three theorists are the framework for multi-age grouping because they believed children learn by building upon already acquired knowledge from their capabilities to interact with the environment. The constructivist learning theory helps us understand how children learn. In the multi-age setting,
this knowledge of how children learn increases a child's likelihood of success in school (Cotton 1993).

Anderson and Pavan (1993), Gaustad (1992), Katz (1995), and Stone (1997), the current authorities on multi-age grouping, have accepted the research on child development and learning. This research has established that children of the same chronological age vary in readiness to learn. Older children learn differently from younger children. Most young children learn by doing. All children have different learning styles and cultural and family backgrounds; because of this, various teaching methods are needed to meet the needs of all students. According to these authorities, this occurs in the multi-age setting.

Willis (1989), Hale-Benson (1986), and Durodoye and Hildreth (1995) indicated in their research that the learning styles of African American students are influenced by their culture. According to Durodoye and Hildreth (1985), most studies conducted on African American students revealed that these students have field-sensitive learning tendencies or are more field dependent. Field-sensitive/field-dependent students are global in their views, need cues from the environment, excel at verbal tasks, are people oriented, and remember materials in a social context. African American children have problems in the traditional organizational structure because they are required to perform in a manner that does not facilitate their learning style. Multi-age
classrooms are an option for African American students because the curriculum is adjusted to meet the individual needs of the individual student.

Gaustad (1992) indicated that research on the effects of failure revealed that retention has a negative effect on a child's self-esteem and attitude toward school. The only two life events children rated as more stressful than being retained were divorce and the death of a parent. According to Anderson and Pavan (1993), learning tasks in the multi-age classroom are planned so that children will succeed. The continuous progress concept of multi-age grouping, as described by Goodlad and Anderson (1987), eliminates the negative effects of retention.

According to Goodlad and Anderson (1987), children progress at different rates and in different areas of achievement. Therefore, developmentally appropriate education must be flexible in its expectations for the timing of children's achievement, rather than expecting all children to progress at a uniform rate (Gaustad 1992).

Another theory behind multi-age grouping is the belief that a learner's emotional state affects learning. Most children come to school with a positive self-concept and high levels of self-esteem based on past experiences and successful interactions with their environment. According to Stone (1997), most children acquire behaviors by observing and imitating social models. By providing children with an
emotionally positive early school experience, the foundation for academic success is instituted. A multi-age setting provides a natural social learning environment that supports cross-age learning across multiple learning domains.

According to Tercek (1997), teaching is individualized and interaction with peers helps to broaden perspectives and develop social skills in multi-age settings. By applying the theory of social learning theories to the multi-age setting, younger children have many opportunities to observe and emulate older children, thus enhancing their social development. Students are allowed to practice through developmental conflicts with different-age peers, thus mirroring a family. According to Tercek (1997), multi-age classrooms reflect a real, diverse world, giving children the chance to develop strong interrelationships between school, home, and society.

Definition of Variables

Dependent Variables

The dependent variables are principals' and teachers' decisions regarding the selection of the organization pattern of multi-age grouping. Multi-age grouping is the practice of deliberately mixing children of different ages and ability levels in the same classroom with the same
teacher for two to three years without dividing the cur-
riculum into steps labeled by grade designations (Gaustad 

Independent Variables

Retention: The process of having a child who has 
failed to master the curriculum requirements of a particular 
grade repeat that grade.

Student achievement: Progression or mastery of 
academic skills or knowledge that an individual has 
acquired.

Social development: Progression of learned patterns 
of behaviors that are influenced by one's environment and 
are accepted by society.

Developmentally appropriate practices: A research-
based philosophy of how children develop and learn stressing 
the need for a balanced perspective on the whole child in 
all of his or her complexity (Miller 1994, 18-19).

Moderating Variables

School size: Refers to the student population in a 
school (Cotton 1996). For this study, a small school is 
defined as having up to 500 students. A large school is 
defined as having 501 students or more.

School location: Refers to the geographical location 
of the school, as defined by the U.S. Bureau of the Census
(1995). Rural schools are located in places of less than 2,500 persons and outside of incorporated places. Suburban schools are located in an outlying part of a city or town; they may be in a smaller community adjacent to a city. Urban schools are located in places of 2,500 or more persons.

Relationships Among the Variables

The theoretical framework suggests that each of the independent variables collectively and individually have an impact on principals' and teachers' selection of multi-age grouping (see figure 1). It is critical that principals and teachers have similar beliefs on selection factors. The study investigated which factors may have affected the multi-age selection process for principals and teachers. The moderating school variables of size and location were added to determine if they had an impact on the types of decisions principals and teachers make on selecting multi-age grouping.

Null Hypotheses

The following null hypotheses were developed for investigation:

Hypothesis 1: There are no significant differences among the factors influencing principals' decision to initiate multi-age classrooms.
RELATIONSHIP AMONG THE VARIABLES

**Dependent Variables**

Position of Decision Maker

- Principal
- Teacher

**Moderator Variables**

- School Size
- School Location

**Independent Variables**

- Retention
- Academic Achievement
- Social Development
- Developmentally Appropriate Practices

*Fig. 1. Relationship among the variables*
Hypothesis 2: There are no significant differences among the factors influencing teachers' decision to initiate multi-age classrooms.

Hypothesis 3: There are no significant differences among principals and teachers on the importance of retention in decisions to initiate multi-age classrooms.

Hypothesis 4: There are no significant differences among principals and teachers on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 5: There are no significant differences among principals and teachers on the importance of social development in decisions to initiate multi-age classrooms.

Hypothesis 6: There are no significant differences among principals and teachers on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

Hypothesis 7: There is no interaction between school size (small and large) and position on the importance of retention in decisions to initiate multi-age classrooms.

Hypothesis 8: There is no interaction between school size (small and large) and position on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 9: There is no interaction between school size (small and large) and position on the importance of
social development in decisions to initiate multi-age classrooms.

**Hypothesis 10**: There is no interaction between school size (small and large) and position on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

**Hypothesis 11**: There is no significant difference among the principals and teachers of small and large schools on the importance of retention in decisions to initiate multi-age classrooms.

**Hypothesis 12**: There is no significant difference among the principals and teachers of small and large schools on the importance of student achievement in decisions to initiate multi-age classrooms.

**Hypothesis 13**: There is no significant difference among the principals and teachers of small and large schools on the importance of social development in decisions to initiate multi-age classrooms.

**Hypothesis 14**: There is no significant difference among the principals and teachers of small and large schools on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

**Hypothesis 15**: There is no interaction between school location (rural, suburban, and urban) and position on the importance of retention in decisions to initiate multi-age classrooms.
Hypothesis 16: There is no interaction between school location (rural, suburban, and urban) and position on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 17: There is no interaction between school location (rural, suburban, and urban) and position on the importance of social development in decisions to initiate multi-age classrooms.

Hypothesis 18: There is no interaction between school location (rural, suburban, and urban) and position on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

Hypothesis 19: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of retention in decisions to initiate multi-age classrooms.

Hypothesis 20: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 21: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of social development in decisions to initiate multi-age classrooms.

Hypothesis 22: There is no significant difference among principals and teachers of rural, suburban, and urban
schools on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

Limitations of the Study

This study was limited to selected elementary schools in the United States except Kentucky and Alaska. Only principals and teachers who worked with the ages of five through ten and grade levels of kindergarten through fifth grade were solicited for this study. The state of Kentucky mandates nongraded education, thus making selection factors in this study invalid. Alaska was eliminated from the study because multi-age classrooms are formed mainly because of population and geographic issues. The concept of multi-age grouping usually focuses on the primary grades because of the perceived importance of giving children a positive or good start to the beginning of their educational experience; therefore, students over the age of ten and beyond fifth grade did not participate in this study. Due to the voluntary nature of this study, generalizations cannot be made toward multi-age settings. Since all participants were volunteers and were currently participating in multi-age settings, the likelihood of obtaining true responses to the survey were greater. The questionnaire imposed limitations on the study because it was developed by the researcher. This was a descriptive research design, and one
of the major drawbacks of this type of research design is the lack or failure of subjects to return questionnaires.

Summary

This chapter examined the relationship among the sets of variables. Emphasis on the role of theory, presentation and definition of variables, relationships among the variables, the statement of the null hypotheses, and the limitations of the study were presented. The theoretical framework in this chapter examined the relationship among principals and teachers on the importance of retention, student achievement, social development, and developmentally appropriate practices in decisions related to the initiation of multi-age classrooms. Moderating variables of school size and location were also examined to determine if they influence decisions to initiate multi-age classrooms by principals and teachers.
CHAPTER IV
METHODS AND PROCEDURES

Introduction
This chapter explains the methods and procedures that were used to conduct the research on selection factors of multi-age programs by principals and teachers. The research design, description of the instrument, data collection procedure, and statistical application are discussed in this chapter.

Research Design
The methods and techniques of descriptive research were chosen for this study. According to Gall, Borg, and Gall (1996), descriptive research is a type of quantitative research that involves making careful descriptions of educational phenomena. Descriptive research involves collecting data to answer questions or test hypotheses concerning the status of the subject of the study (Gay 1981). In other words, descriptive research determines and reports the way things are. Descriptive data are typically collected through a questionnaire, a survey, an interview, or observation. The researcher usually develops the instrument for descriptive
research. In this study, the researcher developed a questionnaire that was validated by several experts in the field of multi-age grouping. The questionnaire was mailed to multi-age principals and teachers to determine what factors influenced their decisions on initiating multi-age classrooms.

**Description of the Setting**

The setting for this study was all known elementary schools in the United States, except for Kentucky and Alaska, that contain multi-age programs. Kentucky was excluded from this study because of the 1990 legislative mandate that established ungraded primary programs for all students up to the fourth grade. Alaska was excluded because many multi-age programs are established in that state because of sparse student population in the isolated areas of the state. The sample for this research was obtained by attending the 1998 Sixth Annual National Conference on Multi-age and Looping Practices in Cincinnati, Ohio.

**Sampling Procedures**

The concept of sampling involves taking a portion of the population, making observations on this smaller group, and then generalizing the findings to the larger population (Ary, Jacobs, and Razavieh 1990). The researcher decided to use availability or convenience sampling for this study.
According to McMillan and Schumacher (1989) and Wallen and Fraenkel (1991), availability or convenience sampling involves using whatever subjects are available to the researcher. This type of sampling was selected because there is no known number or directory of multi-age programs in the United States. Individual school systems and schools decide to implement this type of organizational pattern without the concrete evidence of how many are in existence. The researcher obtained the sample population of multi-age principals and teachers from a national conference. At the conference, educators were solicited to participate in the study. All interested educators were sent a questionnaire regarding the study. The researcher also solicited multi-age organizations for mailing lists. Only one organization responded, and those members that were not duplicated from the conference were sent a questionnaire.

Description of the Instrument

The survey was designed and developed by the researcher. However, some of the items were selected, utilized, and modified from other instruments, such as questionnaires from the works of Anderson and Pavan (1993), Miller (1994), and Tereck (1997). Gay (1981) gave several guidelines when constructing a questionnaire or survey. The instrument should be attractive, brief, and as easy to
respond to as possible. Each item should deal with a single concept and be worded as clearly as possible.

The researcher validated the instrument by using a group of educators consisting of two multi-age administrators, three multi-age teachers, two school psychologists, and a multi-age consultant/principal from Australia. The group was asked to review the instrument for clarity and distribution of the items. Face validity, according to Tuckman (1999), involves a subjective inspection of the test items to judge whether they cover the content that the test measures. Results of the instrument validation indicated that all of the respondents noted that the four factors were relevant and valid. The other comments from the respondents dealt with editorial issues such as changing the wording in some statements for clarity and being consistent with verb usage.

Data Collection Procedures

Principals and teachers employed at elementary schools in the United States that have implemented multi-age programs were selected for the study. Specific names and addresses of principals and teachers were obtained. Each known principal and teacher in a multi-age setting was mailed a packet. The packet contained a cover letter explaining the nature and purpose of the study, the questionnaire itself, a findings summary request form, and a
return-addressed stamped envelope which was coded to record returns for the purpose of following up the ones who had not responded. Seven days after the questionnaire had been sent out, a postcard was mailed asking participants to complete and return the questionnaire. Additional follow-up letters were mailed to principals and teachers in multi-age settings that did not respond to the first mailing.

**Statistical Applications**

The data were analyzed using the computer programs of SPSS-PC (SPSS 1993). Responses from the teachers and principals were entered into the SPSS database. A description of the sample was made using frequencies and percentages. The reliability of scales and means and standard deviations of the four selection factors were obtained. Research Question 1 was analyzed using pairwise comparisons of the four selection factors to determine if there were differences among principals. The comparisons determined which of the selection factors were more important when making the multi-age grouping decision. The same occurred for the teachers in Research Question 2.

Research Question 3 was analyzed using a multivariate analysis of variance (MANOVA). The independent variable was educator group (principal and teacher), while the four selection factors of retention, student achievement, social development, and developmentally appropriate
practices were the dependent variables. The MANOVA was used to determine if differences exist between the principals and teachers on why they selected multi-age grouping.

Research Question 4 was analyzed using a 2 x 2 factorial MANOVA. The independent variables were educator group (principal and teacher) and school size (small and large). The dependent variables were the four selection factors of retention, student achievement, social development, and developmentally appropriate practices. The MANOVA was used to determine if there was an interaction between educator group and school size or if differences exist on the main effects of school size educator group.

Research Question 5 was analyzed using a 2 x 3 factorial MANOVA. The independent variables were educator group (principal and teacher) and school location (rural, suburban, and urban). The dependent variables were the four selection factors of retention, student achievement, social development, and developmentally appropriate practices. The MANOVA was used to determine if there was an interaction between educator group and school location or if differences exist on the main effect of school location or educator group.

**Summary**

The purpose of this study was to determine factors which may have influenced decisions made by principals and
teachers to initiate multi-age classrooms. This chapter presented a description of the general design and methodology related to the purpose. A descriptive research design was used to conduct this study. Description of the setting, sampling procedure, description of the instrument, data collection procedures, and statistical analysis of data were also discussed in this chapter.
CHAPTER V
ANALYSIS OF THE DATA

The purpose of this study was to determine factors that have influenced decisions by principals and teachers to initiate multi-age classrooms in the United States. Principals and teachers who had implemented multi-age programs were mailed a questionnaire.

Data were collected and analyzed to determine if principals and teachers differed in their perception of the factors that may have influenced the selection of multi-age grouping. Findings are presented in tables and include both descriptive and statistical analyses. Each hypothesis is stated, followed by descriptive information and an analysis table of the hypothesis. An alpha level of .05 was used for hypothesis testing.

Table 1 displays responses to the mailing procedure. Eight hundred two multi-age principals and teachers were mailed a questionnaire. Three hundred fifty-seven principals and teachers responded. This was a response rate of 44.5 percent for the total mailing, 30.4 percent for principals and 48.3 percent for teachers. The response rate for
teachers was higher due to the large number of teachers that were mailed a questionnaire.

Description of the Sample

Nineteen of the 357 respondents were no longer participating in multi-age programs. Data were entered twice and verified for 338 returns. The scores for the four factors of grade retention, academic achievement, social development, and developmentally appropriate practices were created only for those cases where respondents answered 80 percent of the items for each factor. Those respondents not receiving mean scores on one or more of the four factors (n = 27) or not indicating their school size (n = 18) were not used.

The data for 298 respondents were examined for multivariate outliers on the four selection factors. Four
cases were found. They were eliminated. Therefore, 294 cases were used for the analyses of the hypotheses. Table 2 shows the characteristics of this sample.

TABLE 2
CHARACTERISTICS OF THE SAMPLE

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Role</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal</td>
<td>38</td>
<td>12.9</td>
</tr>
<tr>
<td>Teacher</td>
<td>256</td>
<td>87.1</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>10.2</td>
</tr>
<tr>
<td>Female</td>
<td>264</td>
<td>89.8</td>
</tr>
<tr>
<td>Highest Degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>97</td>
<td>33.0</td>
</tr>
<tr>
<td>Masters</td>
<td>184</td>
<td>62.6</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>10</td>
<td>3.4</td>
</tr>
<tr>
<td>Missing</td>
<td>3</td>
<td>1.0</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>64</td>
<td>21.8</td>
</tr>
<tr>
<td>Suburban</td>
<td>144</td>
<td>49.0</td>
</tr>
<tr>
<td>Rural</td>
<td>86</td>
<td>29.3</td>
</tr>
<tr>
<td>Current Grade Span</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two ages/grades</td>
<td>194</td>
<td>66.0</td>
</tr>
<tr>
<td>Three ages/grades</td>
<td>47</td>
<td>16.0</td>
</tr>
<tr>
<td>&gt; Three ages/grades</td>
<td>4</td>
<td>1.4</td>
</tr>
<tr>
<td>Missing</td>
<td>49</td>
<td>16.6</td>
</tr>
</tbody>
</table>

Thirteen percent of the respondents were principals and 87 percent were teachers. Forty-nine percent of the respondents were suburban in location. Sixty-two percent had a master's degree. Nearly 90 percent (89.8 percent) of the respondents were female, and 12.9 percent were male. Sixty-six percent of the respondents adopted a two ages/grades span, while 16 percent adopted a three ages/grades span.
Table 3 shows the mean, standard deviation, and range for school enrollment, principals' and teachers' years in education as well as their years teaching in a multi-age setting. The average school enrollment for the respondents was 506.5. Principals' and teachers' average years teaching in the multi-age setting was 6.1, while the average years in education in general was 18.8.

**TABLE 3**

**ENROLLMENT AND TEACHING EXPERIENCE**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Enrollment</td>
<td>506.5</td>
<td>206.3</td>
<td>105-1,115</td>
</tr>
<tr>
<td>Years Teaching in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Age</td>
<td>6.1</td>
<td>4.6</td>
<td>&lt; 1 to 28</td>
</tr>
<tr>
<td>Years in Education</td>
<td>18.8</td>
<td>8.9</td>
<td>2 to 41</td>
</tr>
</tbody>
</table>

**Reasons for Multi-Age Programs**

Table 4 displays the reasons given for multi-age programs. Seven possible reasons were listed for establishing multi-age programs, along with a category for other reasons. The majority of respondents indicated that developmentally appropriate practices were the leading reason that multi-age programs were implemented in their school. Lack of teachers, small student enrollment, and elimination of retention were the least important reasons for establishing
TABLE 4
REASONS FOR ESTABLISHING MULTI-AGE PROGRAMS

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Frequency</th>
<th>% of Cases*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of teachers</td>
<td>11</td>
<td>3.8</td>
</tr>
<tr>
<td>Small student enrollment</td>
<td>22</td>
<td>7.6</td>
</tr>
<tr>
<td>Curriculum decision</td>
<td>141</td>
<td>48.6</td>
</tr>
<tr>
<td>Elimination of retention</td>
<td>43</td>
<td>14.8</td>
</tr>
<tr>
<td>Developmentally appropriate</td>
<td>238</td>
<td>82.1</td>
</tr>
<tr>
<td>Improves social development</td>
<td>190</td>
<td>65.5</td>
</tr>
<tr>
<td>Improves academic achievement</td>
<td>169</td>
<td>58.3</td>
</tr>
<tr>
<td>Other</td>
<td>112</td>
<td>38.6</td>
</tr>
</tbody>
</table>

*Multiple responses were possible.

multi-age programs. Other reasons written in for the formation of multi-age programs included parental input, large enrollment, administrative decision, special funding, desires of teachers, and to meet individual student needs.

Reliability Scales

Table 5 displays reliability scales. Twenty-seven items were used to create scales to measure the four selection factors of grade retention, academic achievement, social development, and developmentally appropriate practices. Reliability analysis was conducted using Cronbach's coefficient alpha, and the table reports the results. The
reliability of the retention scale is low, possibly due to the small number of items related to that variable.

Analyses of Hypotheses

Hypothesis 1: There are no significant differences among the factors influencing principals' decision to initiate multi-age classrooms.

This hypothesis was analyzed using a series of pairwise comparisons (t tests) of the four selection factors to determine if there are differences among principals. Table 6 presents the results of these series of pairwise comparisons for principals.

The statistical calculations presented in table 6 reveal that there are significant differences between the selection factors. Using a series of pairwise comparisons (t tests), Hypothesis 1 was rejected because there were

---

TABLE 5

RELIABILITY ANALYSIS OF SCALES

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of Items</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention</td>
<td>4</td>
<td>.49</td>
</tr>
<tr>
<td>Achievement</td>
<td>7</td>
<td>.83</td>
</tr>
<tr>
<td>Social Development</td>
<td>9</td>
<td>.84</td>
</tr>
<tr>
<td>Developmentally Appropriate</td>
<td>7</td>
<td>.83</td>
</tr>
</tbody>
</table>

---
TABLE 6
PAIRWISE COMPARISONS OF SELECTION FACTORS WITHIN GROUP OF PRINCIPALS

<table>
<thead>
<tr>
<th></th>
<th>Retention</th>
<th>Achievement</th>
<th>Social Development</th>
<th>Developmentally Appropriate Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention Mean</td>
<td>4.25</td>
<td>4.16</td>
<td>4.42</td>
<td>( t = 2.25, p = .03 )</td>
</tr>
<tr>
<td>SD</td>
<td>0.54</td>
<td>0.51</td>
<td>0.46</td>
<td>Developmentally Appropriate is higher</td>
</tr>
<tr>
<td></td>
<td>( t = 1.19, p = .24 )</td>
<td>Social Development is higher</td>
<td>( t = 3.21, p &lt; .01 )</td>
<td></td>
</tr>
<tr>
<td>Achievement Mean</td>
<td>4.16</td>
<td>4.38</td>
<td>4.54</td>
<td>( t = 4.67, p &lt; .01 )</td>
</tr>
<tr>
<td>SD</td>
<td>0.57</td>
<td>0.54</td>
<td></td>
<td>Developmentally Appropriate is higher</td>
</tr>
<tr>
<td>Social Development Mean</td>
<td>4.42</td>
<td>4.38</td>
<td></td>
<td>( t = 1.91, p = .06 )</td>
</tr>
<tr>
<td>SD</td>
<td>0.66</td>
<td>0.54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

significant differences between the scales. While achievement (mean = 4.16) and retention (mean = 4.25) are not different from each other, and social development (mean = 4.42) and developmentally appropriate practices (mean = 4.54) are not different from each other, achievement and retention are significantly lower than developmentally appropriate practices and social development, as rated by principals. Principals indicated that developmentally appropriate practices and social development were slightly more important reasons for establishing multi-age classrooms than retention or achievement.

Hypothesis 2: There are no significant differences among the factors influencing teachers' decision to initiate multi-age classrooms.
This hypothesis was analyzed using a series of pairwise comparisons \((t\) tests\) of the four selection factors to determine if there are differences among teachers. Table 7 presents the results of these pairwise comparisons for teachers.

**TABLE 7**

PAIRWISE COMPARISONS OF SELECTION FACTORS WITHIN GROUP OF TEACHERS

<table>
<thead>
<tr>
<th></th>
<th>Retention</th>
<th>Achievement</th>
<th>Social Development</th>
<th>Developmentally Appropriate Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retention</strong></td>
<td></td>
<td>n.s.</td>
<td>(t = 8.43, p &lt; .01)</td>
<td>(t = 9.42, p &lt; .01) Developmentally Appropriate is higher</td>
</tr>
<tr>
<td>Mean = 4.27</td>
<td></td>
<td></td>
<td>Social Development is higher</td>
<td></td>
</tr>
<tr>
<td>SD = 0.53</td>
<td></td>
<td>(t = 0.22, p = .83)</td>
<td>Social Development is higher</td>
<td></td>
</tr>
<tr>
<td><strong>Achievement</strong></td>
<td></td>
<td></td>
<td>(t = 9.48, p &lt; .01)</td>
<td>(t = 9.66, p &lt; .01) Developmentally Appropriate is higher</td>
</tr>
<tr>
<td>Mean = 4.27</td>
<td></td>
<td></td>
<td>Social Development is higher</td>
<td></td>
</tr>
<tr>
<td>SD = 0.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social Development</strong></td>
<td>Mean = 4.51</td>
<td></td>
<td>(t = 1.25, p = .21)</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Mean = 4.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD = 0.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The statistical calculations presented in table 7 reveal that there is a significant difference between the selection factors. Using a series of pairwise comparisons \((t\) tests\), Hypothesis 2 was rejected because there are significant differences between the scales. While achievement (mean = 4.27) and retention (mean = 4.27) are not different from each other, and social development (mean = 4.51) and developmentally appropriate practices (mean = 4.54) are not
different from each other, achievement and retention are significantly lower than developmentally appropriate practices and social development, as rated by teachers. Teachers indicated that developmentally appropriate practices and social development were slightly more important reasons for establishing multi-age classrooms.

Hypotheses 3-6 were analyzed using multivariate analysis of variance (MANOVA). The independent variable is educator (principal or teacher), and the four selection factors of retention, student achievement, social development, and developmentally appropriate practices were the dependent variables. Table 8 displays the means and standard deviations of the four selection factors for multi-age grouping by principals and teachers.

TABLE 8
MEANS AND STANDARD DEVIATIONS OF THE SELECTION FACTORS BY POSITION

<table>
<thead>
<tr>
<th>Selection Factors</th>
<th>Total (n = 294)</th>
<th>Principals (n = 38)</th>
<th>Teachers (n = 256)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Retention</td>
<td>4.27</td>
<td>.53</td>
<td>4.25</td>
</tr>
<tr>
<td>Achievement</td>
<td>4.25</td>
<td>.56</td>
<td>4.16</td>
</tr>
<tr>
<td>Social Development</td>
<td>4.50</td>
<td>.45</td>
<td>4.53</td>
</tr>
<tr>
<td>Developmentally Appropriate Practices</td>
<td>4.53</td>
<td>.46</td>
<td>4.54</td>
</tr>
</tbody>
</table>
Table 9 displays the results of the MANOVA for Hypotheses 3-6. The MANOVA was used to determine if differences existed between the principals and teachers on why they selected multi-age grouping.

**TABLE 9**

RESULTS OF THE MANOVA FOR HYPOTHESES 3-6

<table>
<thead>
<tr>
<th>Multivariate Statistic</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilks</td>
<td>0.77</td>
<td>.55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Univariate</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention</td>
<td>0.07</td>
<td>.79</td>
</tr>
<tr>
<td>Student Achievement</td>
<td>1.16</td>
<td>.28</td>
</tr>
<tr>
<td>Social Development</td>
<td>1.37</td>
<td>.24</td>
</tr>
<tr>
<td>Developmentally Appropriate</td>
<td>0.01</td>
<td>.95</td>
</tr>
<tr>
<td>Practices</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hypothesis 3:** There are no significant differences among principals and teachers on the importance of retention in decisions to initiate multi-age classrooms.

The statistical calculations presented in table 9 reveal that there are no significant differences between principals and teachers on the retention factor. Hypothesis 3 is accepted because there is no significant difference between principals and teachers on the selection factor of grade retention. A multivariate analysis of variance \((F = 0.77, p = .55)\) and subsequent univariate analysis \((F = 0.07,\)
Hypothesis 4: There are no significant differences among principals and teachers on the importance of student achievement in decisions to initiate multi-age classrooms.

The statistical calculations presented in table 9 reveal that there are no significant differences between principals and teachers on the student achievement factor. Hypothesis 4 is accepted because there is no significant difference between principals and teachers on the selection factor of student achievement. A multivariate analysis of variance \((F = 0.77, \ p = .55)\) and subsequent univariate analysis \((F = 1.16, \ p = .28)\) revealed no significant differences between principals and teachers on the selection factor of student achievement.

Hypothesis 5: There are no significant differences among principals and teachers on the importance of social development in decisions to initiate multi-age classrooms.

The statistical calculations presented in table 9 reveal that there are no significant differences between principals and teachers on the social development factor. Hypothesis 5 is accepted because there is no significant difference between principals and teachers on the selection factor of social development. A multivariate analysis of variance \((F = 0.77, \ p = .55)\) and subsequent univariate analysis \((F = 1.37, \ p = .24)\) revealed no significant
differences between principals and teachers on the selection factor of social development.

**Hypothesis 6:** There are no significant differences among principals and teachers on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

The statistical calculations presented in table 9 reveal that there are no significant differences between principals and teachers on the developmentally appropriate practices factor. Hypothesis 6 is accepted because there is no significant difference between principals and teachers on the selection factor of developmentally appropriate practices. A multivariate analysis of variance ($F = 0.77, p = .55$) and subsequent univariate analysis ($F = 0.01, p = .95$) revealed no significant differences between principals and teachers on the selection factor of developmentally appropriate practices.

Hypotheses 7-14 were analyzed using a 2 x 2 factorial MANOVA to determine if there was an interaction between educator group (principal and teachers) and school size (small and large) or if a main effect of school size exists. Table 10 shows the means and standard deviations of the four selection factors by school size and educator group.

Of the 294 questionnaires used in the analysis of the data, only 289 contained information concerning school
| TABLE 10 | MEANS AND STANDARD DEVIATIONS OF THE FACTORS BY POSITION AND SCHOOL SIZE |
|----------------|-----------------|-----------------|
|                | n               | Mean            | SD              |
| Total Retention| 289             | 4.28            | 0.54            |
| Small Schools  | 157             | 4.31            | 0.55            |
| Principals     | 21              | 4.25            | 0.58            |
| Teachers        | 136             | 4.32            | 0.54            |
| Large Schools  | 132             | 4.23            | 0.52            |
| Principals     | 17              | 4.25            | 0.51            |
| Teachers        | 115             | 4.22            | 0.53            |
| Total Student Achievement | 289 | 4.26 | 0.55 |
| Small Schools  | 157             | 4.28            | 0.55            |
| Principals     | 21              | 4.13            | 0.64            |
| Teachers        | 136             | 4.31            | 0.54            |
| Large Schools  | 132             | 4.23            | 0.56            |
| Principals     | 17              | 4.20            | 0.48            |
| Teachers        | 115             | 4.24            | 0.57            |
| Total Social Development | 289 | 4.50 | 0.45 |
| Small Schools  | 157             | 4.51            | 0.45            |
| Principals     | 21              | 4.43            | 0.49            |
| Teachers        | 136             | 4.53            | 0.45            |
| Large Schools  | 132             | 4.48            | 0.44            |
| Principals     | 17              | 4.40            | 0.43            |
| Teachers        | 115             | 4.50            | 0.44            |
| Total Developmentally Appropriate Practices | 289 | 4.54 | 0.46 |
| Small Schools  | 157             | 4.55            | 0.47            |
| Principals     | 21              | 4.55            | 0.49            |
| Teachers        | 136             | 4.54            | 0.47            |
| Large Schools  | 132             | 4.53            | 0.46            |
| Principals     | 17              | 4.53            | 0.40            |
| Teachers        | 115             | 4.53            | 0.47            |
size as related to the parameters defined in Chapter IV. School size was categorized into small (0-500 students) and large (501 or more students). The mean scores ranged from 4.13 to 4.55. Teachers and principals gave the same level of importance to the selection factors.

Table 11 displays the results of the MANOVA for Hypotheses 7-14. The statistical calculations presented in table 11 reveal that there is no interaction of position and school size and no main effect of school size.

**Hypothesis 7:** There is no interaction between school size (small and large) and position on the importance of retention in decisions to initiate multi-age classrooms.

There was no significant interaction of position and school size on the selection factor of retention. Therefore, Hypothesis 7 is accepted. A multivariate analysis of variance ($\bar{F} = 0.31, \bar{p} = .87$) revealed no significant interaction of educator group and school size for the selection factor of retention.

**Hypothesis 8:** There is no interaction between school size (small and large) and position on the importance of student achievement in decisions to initiate multi-age classrooms.

There was no significant interaction of position and school size on the selection factor of student achievement. Therefore, Hypothesis 8 is accepted. A multivariate analysis of variance ($\bar{F} = 0.50, \bar{p} = .58$) revealed no significant
### TABLE 11

RESULTS OF THE MANOVA FOR HYPOTHESES 7-14

<table>
<thead>
<tr>
<th>Interaction: Position by Size</th>
<th>Multivariate Statistic</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wilks</td>
<td>0.31</td>
<td>.87</td>
</tr>
</tbody>
</table>

#### Univariate

<table>
<thead>
<tr>
<th></th>
<th>Wilks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention</td>
<td>0.25</td>
</tr>
<tr>
<td>Student Achievement</td>
<td>0.50</td>
</tr>
<tr>
<td>Social Development</td>
<td>0.001</td>
</tr>
<tr>
<td>Developmentally Appropriate Practices</td>
<td>0.001</td>
</tr>
</tbody>
</table>

#### By Size (Main Effect)

<table>
<thead>
<tr>
<th>Multivariate Statistic</th>
<th>Wilks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.15</td>
</tr>
</tbody>
</table>

#### Univariate

<table>
<thead>
<tr>
<th></th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention</td>
<td>0.25</td>
</tr>
<tr>
<td>Student Achievement</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Social Development</td>
<td>0.17</td>
</tr>
<tr>
<td>Developmentally Appropriate Practices</td>
<td>0.04</td>
</tr>
</tbody>
</table>

interaction of position and school size for the selection factor of student achievement.

**Hypothesis 9:** There is no interaction between school size (small and large) and position on the importance of
social development in decisions to initiate multi-age classrooms.

There was no significant interaction of position and school size on the selection factor of social development. Therefore, Hypothesis 9 is accepted. A multivariate analysis of variance ($F = 0.001, p = .97$) revealed no significant interaction of position and school size for the selection factor of social development.

**Hypothesis 10:** There is no interaction between school size (small and large) and position on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

There was no significant interaction of position and school size on the selection factor of developmentally appropriate practices. Therefore, Hypothesis 10 is accepted. A multivariate analysis of variance ($F = 0.001, p = .97$) revealed no significant interaction of position and school size for the selection factor of developmentally appropriate practices.

**Hypothesis 11:** There is no significant difference among the principals and teachers of small and large schools on the importance of retention in decisions to initiate multi-age classrooms.

There was no significant main effect of school size on the selection factor of retention. Therefore, Hypothesis 11 is accepted. A univariate analysis ($F = 0.25, p = .62$)
revealed no main effect of school size for the selection factor of retention.

**Hypothesis 12**: There is no significant difference among the principals and teachers of small and large schools on the importance of student achievement in decisions to initiate multi-age classrooms.

There was no significant main effect of school size on the selection factor of student achievement. Therefore, Hypothesis 12 is accepted. A univariate analysis ($F < 0.01$, $p = .99$) revealed no main effect of school size for the selection factor of student achievement.

**Hypothesis 13**: There is no significant difference among the principals and teachers of small and large schools on the importance of social development in decisions to initiate multi-age classrooms.

There was no significant main effect of school size on the selection factor of social development. Therefore, Hypothesis 13 is accepted. A univariate analysis ($F = 0.17$, $p = .68$) revealed no main effect of school size for the selection factor of social development.

**Hypothesis 14**: There is no significant difference among the principals and teachers of small and large schools on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

There was no significant main effect of school size on the selection factor of developmentally appropriate
practices. Therefore, Hypothesis 14 is accepted. A univariate analysis ($F = 0.04$, $p = .84$) revealed no main effect of school size for the selection factor of developmentally appropriate practices.

Hypotheses 15-22 were analyzed using a 2 x 3 factorial MANOVA. Table 12 shows the means and standard deviations of the four selection factors by educator group (principal or teacher) and school location (rural, suburban, or urban). Although the mean scores are numerically different, statistically they are not significantly different.

Table 13 displays the results of the MANOVA for Hypotheses 15-22. The MANOVA was used to determine if there was an interaction between educator group (principal or teacher) and school location (urban, suburban, or rural) or if differences existed on the main effect of school location on the four factors.

**Hypothesis 15**: There is no interaction between school location (rural, suburban, and urban) and position on the importance of retention in decisions to initiate multi-age classrooms.

The statistical calculations revealed that there was no significant interaction of position and school location for the selection factor of retention. Therefore, Hypothesis 15 is accepted. A multivariate analysis of variance ($F = 0.63$, $p = .53$) revealed no significant interaction of position and school location for the factor of retention.
TABLE 12

MEANS AND STANDARD DEVIATIONS OF THE FACTORS BY POSITION AND SCHOOL LOCATION

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Retention</td>
<td>294</td>
<td>4.27</td>
<td>0.53</td>
</tr>
<tr>
<td>Principal</td>
<td>38</td>
<td>4.25</td>
<td>0.54</td>
</tr>
<tr>
<td>Urban</td>
<td>10</td>
<td>4.40</td>
<td>0.52</td>
</tr>
<tr>
<td>Suburban</td>
<td>16</td>
<td>4.19</td>
<td>0.62</td>
</tr>
<tr>
<td>Rural</td>
<td>12</td>
<td>4.21</td>
<td>0.47</td>
</tr>
<tr>
<td>Teacher</td>
<td>256</td>
<td>4.27</td>
<td>0.53</td>
</tr>
<tr>
<td>Urban</td>
<td>54</td>
<td>4.24</td>
<td>0.58</td>
</tr>
<tr>
<td>Suburban</td>
<td>128</td>
<td>4.27</td>
<td>0.53</td>
</tr>
<tr>
<td>Rural</td>
<td>74</td>
<td>4.30</td>
<td>0.49</td>
</tr>
<tr>
<td>Total Student Achievement</td>
<td>294</td>
<td>4.25</td>
<td>0.56</td>
</tr>
<tr>
<td>Principal</td>
<td>38</td>
<td>4.20</td>
<td>0.50</td>
</tr>
<tr>
<td>Urban</td>
<td>10</td>
<td>4.32</td>
<td>0.51</td>
</tr>
<tr>
<td>Suburban</td>
<td>16</td>
<td>4.12</td>
<td>0.71</td>
</tr>
<tr>
<td>Rural</td>
<td>12</td>
<td>4.10</td>
<td>0.47</td>
</tr>
<tr>
<td>Teacher</td>
<td>256</td>
<td>4.27</td>
<td>0.55</td>
</tr>
<tr>
<td>Urban</td>
<td>54</td>
<td>4.32</td>
<td>0.55</td>
</tr>
<tr>
<td>Suburban</td>
<td>128</td>
<td>4.21</td>
<td>0.60</td>
</tr>
<tr>
<td>Rural</td>
<td>74</td>
<td>4.32</td>
<td>0.47</td>
</tr>
<tr>
<td>Total Social Development</td>
<td>294</td>
<td>4.50</td>
<td>0.45</td>
</tr>
<tr>
<td>Principal</td>
<td>38</td>
<td>4.41</td>
<td>0.46</td>
</tr>
<tr>
<td>Urban</td>
<td>10</td>
<td>4.51</td>
<td>0.45</td>
</tr>
<tr>
<td>Suburban</td>
<td>16</td>
<td>4.35</td>
<td>0.43</td>
</tr>
<tr>
<td>Rural</td>
<td>12</td>
<td>4.43</td>
<td>0.53</td>
</tr>
<tr>
<td>Teacher</td>
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<td>4.51</td>
<td>0.44</td>
</tr>
<tr>
<td>Urban</td>
<td>54</td>
<td>4.54</td>
<td>0.45</td>
</tr>
<tr>
<td>Suburban</td>
<td>128</td>
<td>4.51</td>
<td>0.42</td>
</tr>
<tr>
<td>Rural</td>
<td>74</td>
<td>4.53</td>
<td>0.44</td>
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### Table 12--Continued

<table>
<thead>
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<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>Total Developmentally Appropriate Practices</td>
<td>294</td>
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<td>0.46</td>
</tr>
<tr>
<td>Principal</td>
<td>38</td>
<td>4.54</td>
<td>0.45</td>
</tr>
<tr>
<td>Urban</td>
<td>10</td>
<td>4.61</td>
<td>0.42</td>
</tr>
<tr>
<td>Suburban</td>
<td>16</td>
<td>4.60</td>
<td>0.33</td>
</tr>
<tr>
<td>Rural</td>
<td>12</td>
<td>4.45</td>
<td>0.60</td>
</tr>
<tr>
<td>Teacher</td>
<td>256</td>
<td>4.54</td>
<td>0.46</td>
</tr>
<tr>
<td>Urban</td>
<td>54</td>
<td>4.54</td>
<td>0.42</td>
</tr>
<tr>
<td>Suburban</td>
<td>128</td>
<td>4.57</td>
<td>0.45</td>
</tr>
<tr>
<td>Rural</td>
<td>74</td>
<td>4.47</td>
<td>0.52</td>
</tr>
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### TABLE 13

RESULTS OF THE MANOVA FOR HYPOTHESES 15-22

<table>
<thead>
<tr>
<th>Interaction: Position by School Location</th>
<th>Multivariate Statistic</th>
<th>F</th>
<th>p</th>
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<tr>
<td>Wilks</td>
<td>F</td>
<td>0.44</td>
<td>.90</td>
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<table>
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<tr>
<th>Univariate</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention</td>
<td></td>
<td>0.63</td>
<td>.53</td>
</tr>
<tr>
<td>Student Achievement</td>
<td></td>
<td>0.44</td>
<td>.65</td>
</tr>
<tr>
<td>Social Development</td>
<td></td>
<td>0.64</td>
<td>.53</td>
</tr>
<tr>
<td>Developmentally Appropriate Practices</td>
<td></td>
<td>0.10</td>
<td>.91</td>
</tr>
</tbody>
</table>
Table 13--Continued

By Location (Main Effect)
Multivariate Statistic

<table>
<thead>
<tr>
<th></th>
<th>Wilks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.79</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.85</td>
</tr>
</tbody>
</table>

Univariate

<table>
<thead>
<tr>
<th></th>
<th>Retention</th>
<th>Student Achievement</th>
<th>Social Development</th>
<th>Developmentally Appropriate Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.32</td>
<td>0.81</td>
<td>0.22</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.73</td>
<td>0.44</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.80</td>
<td>0.43</td>
</tr>
</tbody>
</table>

Hypothesis 16: There is no interaction between school location (rural, suburban, and urban) and position on the importance of student achievement in decisions to initiate multi-age classrooms.

The statistical calculations revealed that there was no significant interaction of position and school location for the selection factor of student achievement. Therefore, Hypothesis 16 is accepted. A multivariate analysis of variance ($F = 0.44$, $p = .65$) revealed no significant interaction of educator group and school location for the factor of student achievement.

Hypothesis 17: There is no interaction between school location (rural, suburban, and urban) and position on the importance of social development in decisions to initiate multi-age classrooms.
The statistical calculations revealed that there was no significant interaction of position and school location for the selection factor of social development. Therefore, Hypothesis 17 is accepted. A multivariate analysis of variance \((F = 0.64, p = .53)\) revealed no significant interaction of educator group and school location for the factor of social development.

**Hypothesis 18**: There is no interaction between school location (rural, suburban, and urban) and position on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

The statistical calculations revealed that there was no significant interaction of position and school location for the selection factor of developmentally appropriate practices. Therefore, Hypothesis 18 is accepted. A multivariate analysis of variance \((F = 0.10, p = .91)\) revealed no significant interaction of educator group and school location for the factor of developmentally appropriate practices.

**Hypothesis 19**: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of retention in decisions to initiate multi-age classrooms.

The statistical calculations revealed that there was no significant main effect of school location for the selection factor of retention. Therefore, Hypothesis 19 is
accepted. A multivariate analysis of variance ($F = 0.32, p = .73$) revealed no significant interaction of educator group and school location for the factor of retention.

**Hypothesis 20:** There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of student achievement in decisions to initiate multi-age classrooms.

The statistical calculations revealed that there was no significant main effect of school location for the selection factor of student achievement. Therefore, Hypothesis 20 is accepted. A multivariate analysis of variance ($F = 0.81, p = .44$) revealed no significant interaction of position and school location for the factor of student achievement.

**Hypothesis 21:** There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of social development in decisions to initiate multi-age classrooms.

The statistical calculations revealed that there was no significant main effect of school location for the selection factor of social development. Therefore, Hypothesis 21 is accepted. A multivariate analysis of variance ($F = 0.22, p = .80$) revealed no significant interaction of educator group and school location for the factor of social development.
Hypothesis 22: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

The statistical calculations revealed that there was no significant main effect of school location for the selection factor of developmentally appropriate practices. Therefore, Hypothesis 22 is accepted. A multivariate analysis of variance ($F = 0.85, p = .43$) revealed no significant interaction of position and school location for the factor of developmentally appropriate practices.

Summary

Five statistical tests were used to evaluate twenty-two hypotheses. Table 14 provides a summary of the analyses. Principals and teachers agreed on the reasons that they selected multi-age programs. Statistical analyses revealed that principals and teachers held the same level of perception about the selection factors, regardless of their school size or its location. Both teachers and principals scored social development and developmentally appropriate practices significantly higher than retention or achievement.

Chapter VI presents a discussion of the findings, conclusions, implications, and recommendations.
# TABLE 14
## SUMMARY OF HYPOTHESES

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Analysis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho1: Principals differ on four factors</td>
<td>Paired t test</td>
<td>Retention and student achievement significantly lower than social development and developmentally appropriate practices.</td>
</tr>
<tr>
<td>Ho2: Teachers differ on four factors</td>
<td>Paired t test</td>
<td>Retention and student achievement significantly lower than social development and developmentally appropriate practices.</td>
</tr>
<tr>
<td>Ho3-Ho6: Teachers and principals differ on four factors</td>
<td>MANOVA</td>
<td>No significant difference between groups on any factors.</td>
</tr>
<tr>
<td>Ho7-Ho14: Interaction of educator group and size of school</td>
<td>2 x 2 MANOVA</td>
<td>No significant interaction of educator and school size and no significant main effect of school size.</td>
</tr>
<tr>
<td>Ho15-Ho22: Interaction of educator group and location of school</td>
<td>2 x 3 MANOVA</td>
<td>No significant interaction of educator and school location and no significant main effect of school location.</td>
</tr>
</tbody>
</table>
CHAPTER VI

FINDINGS, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this chapter is to report the findings, conclusions, implications, recommendations, and summary of the research study. This study was designed to determine to what degree principals and teachers were influenced by the variables of retention, student achievement, social development, and developmentally appropriate practices in their selection of multi-age programs. A descriptive research design was utilized for the purpose of this study. Through a questionnaire, data were obtained from 294 principals and teachers throughout the United States.

Findings

The findings of the study were as follows.

Hypothesis 1: There are no significant differences among the factors influencing principals' decision to initiate multi-age classrooms.

The test of Hypothesis 1 revealed that there are significant differences between the selection factors. Retention and achievement are not different from each other,
and social development and developmentally appropriate practices are not different from each other; however, social development and developmentally appropriate practices were rated significantly higher than retention and achievement. Hypothesis 1 was rejected.

**Hypothesis 2:** There are no significant differences among the factors influencing teachers' decision to initiate multi-age classrooms.

The test of Hypothesis 2 revealed that there are significant differences between the selection factors. Retention and achievement are not different from each other and social development and developmentally appropriate practices are not different from each other; however, social development and developmentally appropriate practices were rated significantly higher than retention and achievement. Hypothesis 2 was rejected.

**Hypothesis 3:** There are no significant differences among principals and teachers on the importance of retention in decisions to initiate multi-age classrooms.

Hypothesis 3 was accepted. The test of Hypothesis 3 verified that there are no significant differences between principals and teachers on the selection factor of retention. The perceptions of the principals and teachers are not different on the multi-age selection factor of retention.
Hypothesis 4: There are no significant differences among principals and teachers on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 4 was accepted. The test of Hypothesis 4 verified that there are no significant differences between principals and teachers on the selection factor of student achievement. The perceptions of the principals and teachers are not different on the multi-age selection factor of student achievement.

Hypothesis 5: There are no significant differences among principals and teachers on the importance of social development in decisions to initiate multi-age classrooms.

Hypothesis 5 was accepted. The test of Hypothesis 5 verified that there are no significant differences between principals and teachers on the selection factor of social development. The perceptions of the principals and teachers are not different on the multi-age selection factor of social development.

Hypothesis 6: There are no significant differences among principals and teachers on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

Hypothesis 6 was accepted. The test of Hypothesis 6 verified that there are no significant differences between principals and teachers on the selection factor of developmentally appropriate practices. The perceptions of the
principals and teachers are not different on the multi-age selection factor of developmentally appropriate practices.

**Hypothesis 7:** There is no interaction between school size (small and large) and position on the importance of retention in decisions to initiate multi-age classrooms.

Hypothesis 7 was accepted. The test of Hypothesis 7 verified the belief that there was no significant interaction between school size and position on the selection factor of retention. Therefore, principals and teachers do not differ on their ratings of the selection factor of retention, regardless of the size of school where they are working.

**Hypothesis 8:** There is no interaction between school size (small and large) and position on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 8 was accepted. The test of Hypothesis 8 verified the belief that there was no significant interaction between school size and position on the selection factor of student achievement. Therefore, principals and teachers do not differ on their ratings of the selection factor of student achievement, regardless of the size of school where they are working.

**Hypothesis 9:** There is no interaction between school size (small and large) and position on the importance of
social development in decisions to initiate multi-age classrooms.

Hypothesis 9 was accepted. The test of Hypothesis 9 verified the belief that there was no significant interaction between school size and position on the selection factor of social development. Therefore, principals and teachers do not differ on their ratings of the selection factor of social development, regardless of the size of school where they are working.

Hypothesis 10: There is no interaction between school size (small and large) and position on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

Hypothesis 10 was accepted. The test of Hypothesis 10 verified the belief that there was no significant interaction between school size and position on the selection factor of developmentally appropriate practices. Therefore, principals and teachers do not differ on their ratings of the selection factor of developmentally appropriate practices, regardless of the size of school where they are working in.

Hypothesis 11: There is no significant difference among the principals and teachers of small and large schools on the importance of retention in decisions to initiate multi-age classrooms.
Hypothesis 11 was accepted. The test of Hypothesis 11 revealed that there is no difference on the selection factor of retention between the multi-age educators of small and large schools.

**Hypothesis 12:** There is no significant difference among the principals and teachers of small and large schools on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 12 was accepted. The test of Hypothesis 12 revealed that there is no difference on the selection factor of student achievement between the multi-age educators of small and large schools.

**Hypothesis 13:** There is no significant difference among the principals and teachers of small and large schools on the importance of social development in decisions to initiate multi-age classrooms.

Hypothesis 13 was accepted. The test of Hypothesis 13 revealed that there is no difference on the selection factor of social development between the multi-age educators of small and large schools.

**Hypothesis 14:** There is no significant difference among the principals and teachers of small and large schools on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

Hypothesis 14 was accepted. The test of Hypothesis 14 revealed that there is no difference on the selection
factor of developmentally appropriate practices among the multi-age educators of small and large schools.

**Hypothesis 15:** There is no interaction between school location (rural, suburban, and urban) and position on the importance of retention in decisions to initiate multi-age classrooms.

Hypothesis 15 was accepted. The test of Hypothesis 15 verified the belief that there was no significant interaction between school location and position on the selection factor of retention. Therefore, principals and teachers in different school locations do not differ in their ratings of the selection factor of retention.

**Hypothesis 16:** There is no interaction between school location (rural, suburban, and urban) and position on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 16 was accepted. The test of Hypothesis 16 verified the belief that there was no significant interaction between school location and position on the selection factor of student achievement. Therefore, principals and teachers in different school locations do not differ in their ratings of the selection factor of student achievement.

**Hypothesis 17:** There is no interaction between school location (rural, suburban, and urban) and position on
the importance of social development in decisions to initiate multi-age classrooms.

Hypothesis 17 was accepted. The test of Hypothesis 17 verified the belief that there was no significant interaction between school location and position on the selection factor of social development. Therefore, principals and teachers in different school locations do not differ in their ratings of the selection factor of social development.

Hypothesis 18: There is no interaction between school location (rural, suburban, and urban) and position on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

Hypothesis 18 was accepted. The test of Hypothesis 18 verified the belief that there was no significant interaction between school location and position on the selection factor of developmentally appropriate practices. Therefore, principals and teachers in different school locations do not differ in their ratings of the selection factor of developmentally appropriate practices.

Hypothesis 19: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of retention in decisions to initiate multi-age classrooms.

Hypothesis 19 was accepted. The test of Hypothesis 19 verified that there is no difference on the selection factor of retention among the multi-age principals and
teachers of rural, suburban and urban schools. Regardless of the school location, principals and teachers in multi-age programs did not differ on their ratings of the selection factor of retention.

Hypothesis 20: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of student achievement in decisions to initiate multi-age classrooms.

Hypothesis 20 was accepted. The test of Hypothesis 20 verified the assumption that there is no difference on the selection factor of student achievement among the multi-age principals and teachers of rural, suburban, and urban schools. Regardless of the school location, principals and teachers in multi-age programs did not differ on their ratings of the selection factor of student achievement.

Hypothesis 21: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of social development in decisions to initiate multi-age classrooms.

Hypothesis 21 was accepted. The test of Hypothesis 21 verified the assumption that there is no difference on the selection factor of social development among the multi-age principals and teachers of rural, suburban, and urban schools. Regardless of the school location, principals and teachers in multi-age programs did not differ on their ratings of the selection factor of social development.
Hypothesis 22: There is no significant difference among principals and teachers of rural, suburban, and urban schools on the importance of developmentally appropriate practices in decisions to initiate multi-age classrooms.

Hypothesis 22 was accepted. The test of Hypothesis 22 verified the assumption that there is no difference on the selection factor of developmentally appropriate practices among the multi-age principals and teachers of rural, suburban, and urban schools. Regardless of the school location, principals and teachers in multi-age programs did not differ on their ratings of the selection factor of developmentally appropriate practices.

Based upon the analysis of data as presented in Chapter V, Null Hypotheses 1 and 2 were rejected. Null Hypotheses 3 through 22 were accepted.

Conclusions

The majority of the respondents (87 percent) were teachers, and 13 percent were principals. The findings of this study indicated that principals and teachers selected multi-age programs because they believed that this organizational pattern increased student achievement, eliminated the need for retention, improved social development skills, and used developmentally appropriate practices.

In a pairwise comparison of selection factors, principals and teachers rated social development and
developmentally appropriate practices significantly higher than retention and student achievement. There was no significant difference between principals and teachers in the selection factors of retention, student achievement, social development, and developmentally appropriate practices. The data revealed that these factors were equally important reasons for the selection of multi-age programs for both teachers and principals. Table 15 displays the mean score for each selection factor by educator group.

**TABLE 15**

**COMPARISON OF PRINCIPALS' AND TEACHERS' MEAN SCORE FOR EACH SELECTION FACTOR**

<table>
<thead>
<tr>
<th>Selection Factors</th>
<th>Teachers Mean</th>
<th>Principals Mean</th>
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</thead>
<tbody>
<tr>
<td>Retention</td>
<td>4.27</td>
<td>4.25</td>
</tr>
<tr>
<td>Achievement</td>
<td>4.51</td>
<td>4.16</td>
</tr>
<tr>
<td>Social Development</td>
<td>4.51</td>
<td>4.42</td>
</tr>
<tr>
<td>Developmentally Appropriate Practices</td>
<td>4.54</td>
<td>4.54</td>
</tr>
</tbody>
</table>

The data disclosed that there was no difference between the educators of small and large schools in the selection of multi-age programs based on the factors of retention, student achievement, social development, and developmentally appropriate practices. The findings also
revealed that there was no difference between the educators of rural, suburban, and urban schools in the selection of multi-age grouping based on the selection factors. The data indicated that multi-age programs were established to meet the educational needs of the students, regardless of the school size or school location.

Implications

Clearly, the organizational pattern of multi-age grouping has emerged as an option to the traditional method of grouping children based on the research of how children develop and learn. According to Katz (1995), students of the same age do not necessarily develop and process material presented to them to learn in the same manner. Children learn at different rates and in different ways. Educators across the United States have embraced this theory and selected multi-age programs to eliminate retention, improve academic achievement, increase social development skills, and use developmentally appropriate practices.

Findings of this study support the research on the selection factors for multi-age grouping. Principals and teachers rated each selection factor high; however, social development and developmentally appropriate practices were rated higher than retention and academic achievement. In our changing school climate, having appropriate social skills increases the likelihood that a child will have a positive
school experience because of a better sense of belonging, thus reducing aggressive and disruptive behaviors (Anderson and Pavan 1993, McClellan and Kinsey 1996).

Developmentally appropriate practices appear to enhance a multi-age program by taking into account age appropriateness and individual appropriateness. These practices, according to Johnson (1998), embrace a child's developmental abilities, not chronological age abilities. Developmentally appropriate practices support the theory that developmental rates vary from child to child and encompass social, emotional, and cognitive development. By rating developmentally appropriate practices higher, principals and teachers support the developmental theory of learning.

The findings of this study also indicate that multi-age programs are one option available for students instead of retention. Children in this setting are able to work at different levels, according to their abilities and progress along a continuum; therefore, the need for retention is eliminated. Since the majority of the research on retention indicates that it is not beneficial and in some cases detrimental to a child's self-esteem (Jimerson et al. 1997, Mantzicopoulos 1997, Shephard 1989, Turley 1979), multi-age is another positive educational intervention for children. Multi-age grouping is a tool that allows teachers to develop different expectations for each child.
When examining whether or not the location or size of the school played a role in the selection of multi-age programs, it was determined that this organizational pattern was selected regardless of school size or school location. Principals and teachers in different sized schools and in different locations did not differ on their reasons for selecting multi-age programs. This disputes the research findings of Cotton (1996), who concluded that small schools are more likely to develop multi-age programs. According to this study, principals and teachers of both large and small schools in all locales have embraced the research foundation for multi-age programs.

Administrators and teachers who are considering implementing multi-age programs should reeducate themselves on child development and how children learn. The method of requiring all children to master certain objectives before progressing to the next grade is no longer appropriate.

Administrators and teachers should not expect this organizational and structural method alone to solve all the educational problems of today. Multi-age must be thoroughly researched along with developmentally appropriate practices and the effects of retention on student achievement and social development. In order for any program to be successful, principals and teachers must inform and seek support of the parents and the community. Principals should select a teacher or a group of teachers who believe in the multi-age
philosophy and are willing to embrace a new endeavor. In addition, a method of maintaining records should be established in the beginning to document the effects of this grouping method on children, in order to provide more evidence of the benefits of multi-age grouping.

**Recommendations**

Based upon the findings and implications, the following recommendations are warranted:

1. A study should be conducted using the case study approach to qualitative research. The case study method will allow the researcher to observe actual multi-age classrooms and report on effects of this practice.

2. The study of multi-age programs and their effect on children across the K-12 curriculum should continue.

3. A follow-up study of multi-age participants as they progress through middle school and high school should be done to determine if this method provides long-term advantages.

4. An updated comparison study of multi-age students to single-age students on academic achievement and social development should be conducted.

5. A study should be undertaken on what instructional strategies or methods are used in multi-age settings and how children learn in comparison to their peers in other curriculum settings.
6. School districts should encourage building-level administrators and teachers to stay abreast of the current research on how children learn, and opportunities should be provided for them to stay current on the new trends in education.

7. Colleges and universities should help principals in the establishment of alternative methods of grouping, educating children by designing programs to meet the changing needs of the child, facilitating leadership development in members of the school staff, and providing training on developmentally appropriate practices as these practices relate to multi-age classrooms.

Summary

The lock-step progression of children based solely on chronological age and the recent decades of research on how children learn have caused a revitalization of interest in multi-age grouping. Multi-age grouping is a classroom organizational practice that mixes children of different ages and ability levels in the same classroom without dividing the curriculum into grade levels. The purpose of this study was to determine factors that have influenced decisions by principals and teachers who have implemented multi-age programs. The findings from this study indicated that multi-age programs were established to eliminate
retention, increase academic achievement, improve social skills and use developmentally appropriate practices.
Dear Fellow Educator:

As a multi-age educator, you are involved on a daily basis with children learning with others of different ages and ability levels in the same classroom. You may have chosen this form of grouping because you believe it is a sound educational practice, that it takes into account the various learning styles of children, that it enhances the development of the total child. The reasons why you are involved are varied and for the most part have not been investigated.

As a result, I have developed a survey for a dissertation study that examines the factors that may have influenced your decision to be involved in a multi-age program. You are a member of a select group of multi-age educators chosen to participate in the study.

Will you complete the enclosed questionnaire? Your input is critical to the outcome of this study. Keenly aware of the many demands on your time, I have kept it as brief as possible; it should take ten minutes or less to complete. Your responses will be kept confidential and used only in combination with other responses. The results of your contribution will be posted on the "multi-age discussion group" website (can be accessed from any teacher’s bulletin board site) in early 2000.

Please feel free to contact me at 770-258-3311 with any questions you may have about this study. Thank you for giving of your time to ensure good research about multi-age education.

Sincerely,

Terie Smith
Clark Atlanta University
Bowdon Primary School
APPENDIX B

QUESTIONNAIRE

Rate how important each of the following reasons was in your decision to help implement or be involved in a multi-age program. Circle the number that most closely represents each statement's importance.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Not Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Flexible student pacing is facilitated.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>2. Language development improves more rapidly.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>3. Family-like climate is promoted.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>4. Older children act as models for younger ones.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>5. There are many opportunities for the child to learn through child directed activities.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>6. Competitive pressures on students are reduced.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>7. Children strive to improve their performance and develop their potential.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>8. Classroom activities take into account multiple intelligences.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>9. Children's developmental levels are more readily accepted.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>10. Math skills improve.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>11. Students' self-concept and self-esteem improve.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>12. Social skills improve.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>13. The classroom environment is consistent with the developmental levels of students.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>14. A child's class placement may be changed at any time if felt to be in the best interest of the child.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>
15. Cooperation outweighs competition.
16. Personal, social and emotional well being of younger children in classroom improves.
17. A developmental curriculum is designed around the specific needs of the child.
18. Focus is on the child and child-centered learning.
19. Allows students to develop both leadership and followership skills.
20. Achievement is based on a child's potential, not group norms.
21. Reading skills improve.
22. Younger children engage in more and varied literary experiences.
23. Aggressive and disruptive behavior is reduced.
25. A better attitude toward school is developed.
26. Children develop more sophisticated approaches to problem solving.
27. Classroom activities take into account multiple learning styles of students.

Demographic Information

1. What is your school's enrollment? _________ students

2. How would you describe the area in which your school is located?
   _______ (1) urban
   _______ (2) suburban
   _______ (3) rural

3. What is your highest degree earned?
   _______ (1) Bachelors
   _______ (2) Masters
   _______ (3) Ph.D.
4. What is your gender?

________(1) Male
________(2) Female

5. What is your current role?

________(1) teacher    ▶▶▶ What is your current grade span responsibility?

________(1) two ages/grades combined and taught together
________(2) three ages/grades combined and taught together

How many years have you been teaching in a multi-age setting? ______
How many years have you been in education? ______

________(2) principal    ▶▶▶ How many years have you been working in a multi-age setting? ______
How many years have you been in education? ______

6. For what reasons was multi-age established in your school?  (Check all that apply)

________(1) lack of teachers
________(2) small student enrollment
________(3) curriculum decision
________(4) elimination of retention
________(5) developmentally appropriate
________(6) improves social development
________(7) improves academic achievement
________(8) other ____________________________

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Thank you for your responses. Please return your completed survey in the enclosed pre-stamped envelope.
Last week I sent a questionnaire to you asking for your input concerning multi-age programs. Your responses will help increase the knowledge base concerning multi-age grouping in the United States.

If you have already completed and returned it, please accept my sincere thanks. If not, please do so right away. It is extremely important that your responses are included.

If by some chance you did not receive the questionnaire, or it got misplaced, please call me at 770-258-3311. I will send another one to you immediately.

Terie Smith
Clark Atlanta University
Bowdon Primary School
Dear Fellow Educator:

I sent you a questionnaire several weeks ago to seek your assistance in a study that examines the factors that may have influenced your decision to be involved in a multi-age program. In order to accomplish this task, I need your help. As of this date, I have not received your completed questionnaire.

You are a member of a select group of multi-age educators chosen to participate in the study. As a multi-age educator, you are involved on a daily basis with children learning with others of different ages and ability levels in the same classroom. You may have chosen this form of grouping because you believe it is a sound educational practice that takes into account the various learning styles of children and enhances the development of the total child. The reasons why you are involved are varied and for the most part have not been investigated.

Enclosed is another copy of the questionnaire. The information you provide will remain confidential. No individual information will be revealed. The results of your contribution will be posted on the "multi-age discussion group" website (can be accessed from any teacher's bulletin board site) in early 2000.

Your input is critical to the outcome of this study. Keenly aware of the many demands on your time, I have kept it as brief as possible; it should take ten minutes or less to complete.

Please feel free to contact me at 770-258-3311 with any questions you may have about this study. Thank you for giving of your time to ensure good research about multi-age education.

Sincerely,

Terie Smith
Clark Atlanta University
Bowdon Primary School
REFERENCES


Connell, D. 1987. The first 30 years were the fairest: Notes from the kindergarten and ungraded primary (K-1-2). *Young Children* 42: 30-39.


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