The Interpersonal and Intrapersonal Social Skills of Children Participating in Mixed-Age and Same-Age Kindergarten Programs

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Abstract:

The main objective of this study was to examine the differences in the social skills of children participating in mixed-age and same-age kindergarten programs. To meet the study's objectives, a 28-item Social Skills Rating Scale (SSRS) was developed by the researcher and consisted of two domains: interpersonal and intrapersonal. The sample consisted of sixty-eight teachers and two hundred and fifty eight children. The study investigated for differences between boys from both programs and girls from both programs. Teacher variables were also examined for their possible relations to children's social skills. Analysis revealed significant differences between children on both domains, favoring mixed-age programs. Differences were also found for boys in mixed-age compared to boys from same-age programs. Mixed-age girls rated higher on both social skills domains compared to same-age girls. Teacher variables yielded significant results. Results are discussed in association with the international literature and directions for future research are provided.

Keywords: Kindergarten; mixed/same-age; interpersonal/intrapersonal.

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المهارات الاجتماعية والشخصية في برامج رياض الأطفال للأعمار المختلفة والمتشابهة

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ملخص:

هدفت هذه الدراسة لفحص الفروق بالمهارات الاجتماعية والشخصية في برامج رياض الأطفال للاعمار المختلفة والمتشابهة. لتحقيق أهداف الدراسة تم استخدام مقياس تقدير المهارات الاجتماعية (SSRS) والذي تم تطويره من قبل الباحثة واحتوى على 28 فقرة تم توزيعهم بين بعدين مختلفين: (الاجتماعي والشخصي). تكونت عينة الدراسة من 68 معلمة قاموا بتقييم المهارات الاجتماعية والشخصية لمئتين وثمان وخمسين طفلاً. تحققت الدراسة من الفروق بين الذكور في البرنامجين ومن الفروق بين الإناث إضافة إلى بعض المتغيرات المتعلقة بالمعلمة. أظهرت النتائج وجود فروق دالة احصائيا في المهارات الاجتماعية بين الأطفال لصالح مجموعات الأعمار المختلفة. وأظهرت النتائج فروق دالة احصائيا بحيث حصل الذكور في البرامج ذات الأعمار المختلفة على تقدير أعلى مقارنة مع الذكور في البرامج المتشابهة . وحصلت الإناث في البرنامج ذات الأعمار المختلفة على تقدير أعلى في كلا البعدين مقارنة مع الإناث في البرامج المتشابهة. وساهمت المتغيرات المتعلقة بالمعلمة بنتائج دالة احصائيا. تم مناقشة النتائج من خلال ربطها بالأدب العالمي.

الكلمات المفتاحية: روضة؛ الأعمار المختلفة والمتشابهة؛ المهارات الاجتماعية والشخصية.

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Introduction

Early childhood is a stage of immense growth and which provides a firm foundation for cognitive, moral, physical, emotional, and social development. Researchers frequently explore the relationship between the quality of children's social environment and its' effect on their present and future behaviors and skills in addition to their ability to adapt to varying social settings. Among the skills acquired during these formative years are social skills that manifest themselves as social behaviors. A central implication for researchers and educators is that a dynamic, developmentally appropriate social environment optimally supports children's growth. This environment fosters positive peer relationships and promotes children's interpersonal and intrapersonal abilities. It also supports increased levels of positive self-worth and a heightened sense of responsibility.

Although no single environmental predictor can account for the origin of the complex social behaviors and skills, researchers have investigated the effects of classroom environments on the foundations of these behaviors. As early as 1986, Pratt summarized evidence from both experimental and ethnographic research on the merits of mixed-age programs in the affective and social skill areas. His synthesis of research found that both the younger children and the older ones who acted as mentors, benefited from mixed-age experiences. This conclusion was supported by French, Waas, Stright, and Baker (1986) who also found that children in mixed-age settings had the opportunity to practice their leadership skills, who otherwise might not have assumed leadership positions. In 2002, Kappler and Roellke asserted that mixed-age settings where older children were encouraged to mentor younger ones, produced positive developmental outcomes. It is predicted that a nurturing, well-organized, developmentally appropriate classroom environment positively effects children's interactions and helps them acquire the social skills needed for social adaptation (Bredekamp & Copple, 1997; Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2019). In their search for optimal early childhood environments, researchers proposed that mixed-age classrooms are developmentally appropriate environments that promote children's positive social skills (Anderson & Pavan, 1993; Kasten & Lolli, 1998).

Mixed-age grouping refers to classroom social structures where the age-span of children is greater than one year (Katz, Evangelou, & Hartman, 1990; Hoffman, 2002). This educational program is used to maximize social interactions among the various age groups and is believed to enhance

positive social behaviors such as helping, sharing, cooperating, and caring (Katz, 1992). Hartup and Moore (1990) suggested that childhood predictors of adult social adaptation are how well children are able to get along with other children. Researchers believe that a mixed-age grouping does enhance children's ability to get along with others when compared to children in same-age groupings (McCllelan, 1994). This belief has largely been drawn from teacher evaluations of children's developing behaviors and skills. Teachers are perceived as a valuable and reliable resources for gathering information about children's developmental abilities (Koch, Kastner-Koller, Deimann, Kossmeier, Koitz, & Steiner, 2011; Zhang & Nurmi 2012).

Review of Research

Interpersonal and Intrapersonal Social Skills

Children's social skills are influenced by cultural and environmental forces (Gresham, Elliot, Vance, & Cook, 2011; Gürbüz & Kıran, 2018). The ability to follow rules, control and express emotions in socially acceptable ways are influenced by social settings and interactions with adults (Gresham, Elliott, Vance, & Cook, 2011; Rothbart, Sheese, Rueda, & Posner, 2011; Endedijk, Cillessen, Cox, Bekkering, & Hunnius, 2015). Social skills can be broken down to interpersonal and intrapersonal abilities. Interpersonal skills are behaviors children use to effectively interact with others. They take place between two or more children and include the ability to solve problems, negotiate, and make decisions. It is also the ability to empathically interact well with others and understand their intentions, motivations and feelings. Researchers (Torres, Domitrovich, & Bierman, 2016) reported that positive interpersonal relationships predicted gains in emotional knowledge and as well as achievement.

Intrapersonal skills take place within oneself, also known as self-communication (Park, Tsukyama, Goodwin, Patrick, Duckworth, 2017; Moradi, Faghiharam, & Ghasempour, 2018; Caplan, 2019; Lappa, & Mantzikos, 2019). It is the ability to use introspection and regulate oneself in order to gain positive outcomes. Intrapersonal skills allows children to use introspection to understand their intentions, feelings and motivations (Ussache, Blair, & Raver, 2012; Denham, Zinsser, & Saracho, 2013).

Mixed-Age Research

There is agreement among researchers that mixed-age preschool and kindergarten programs support children's social and emotional development (Babcock, 1995; Anderson & Phillips, 2017; Ronksley-Pavia, Barton, & Pendergast, 2019). The social effects of this model was strongly supported

by a review of literature that demonstrated the critical role peers play in each other's social development (Asher,1983; Katz, 1992). Much of the initial support for the mixed-age model dates back to Vygotsky's sociocultural theory. A main tenant of Vygotsky's theory asserts that children develop according to their social and cultural contexts and that learning is mediated by social interactions. Vygotskian theory also posits that most learning comes as a result of children interacting with their peers (Vygotsky, 1978, a). Central to this theory is that every function in the child's development appears twice. The first function appears on the social level between people (interpschological), and the second function appears on the individual level (intrapsychological) (Vygotsky, 1978, a).

There is recognition that children's social development is supported in mixed-aged settings compared to single-age settings through vast social opportunities for interactions (Vygotsky, 1978, b; Ronksley-Pavia, Barton, & Pendergast, 2019). This model is mostly child-centered and focuses on all aspects of growth including social emotional (Stone, 2010) and works to understand and support children's learning and development. Child-centered in this context means a "focus on designing learning experiences that recognize and respond to the individual needs of each student" (Harris, Spina, Ehrich & Smeed, 2013, p. 3). According to the mixed-age early childhood education model, programs provide children with the opportunity for continuous interaction with their peers of different ages. The social developmental benefits of mixed-age classroom are abundant (Lillard, 2016) specifically when they have a clear focus on developing children's social, emotional and regulatory skills (Flook, Goldberg, Pinger, & Davidson, 2015).

The adequate implementation of the mixed-age approach extends beyond grouping children of different ages together. A successful working model encourages cross-age interactions through shared discovery and tutoring (Katz, Evangelou, & Hartman, 1990; Christie & Jones, 1999). This context allows older children opportunities to scaffold and teach younger ones in their groups. This interaction promotes their ability to be prosocial, proactive, and develop leadership skills (Hartup, 1983; French et al, 1986; Katz, Evangelou, & Hartman, 1990; Messer, Joiner, Loveridge, Light, & Littleton, 1993; Winsler & Diaz, 1995). Younger children in turn, model the behaviors of their older peers (Lillard, 2016; Winsler et al., 2002) viewed as an optimal context for promoting social and cognitive development (Hartup, 1983; Bandura, 1986).

Interest in the potential benefits of mixed-age programs on children's development dates back several decades. Goodlad and Anderson (1959) introduced the notion that children's development may benefit from nontraditional groupings. One of the earliest frameworks explaining the positive benefits of mixed age on children's development was published by Katz, Evangelou, & Hartman (1990). According to this model, mixed-age is defined as "placing children who are at least a year apart in age into the same classroom groups" so as to intentionally "optimize what can be learned when children of different—as well as same—ages and abilities have frequent opportunities to interact" Katz, Evangelou, & Hartman (1990, p. 1). Following this framework, policy makers, educators, and researchers showed interest in investigating mixed-age programs as a possible avenue to enhance children's learning and development.

In studies investigating long-term effects of mixed-age groups, researchers (Veenman, 1995; McClellan & Kinsey, 1999) found that social and academic benefits are associated with the number of years children are in these classrooms. Children in these programs demonstrated higher levels of positive attitudes towards school, greater leadership skills, higher levels of self-esteem, and more prosocial behaviors compared to their counterparts from same-age programs. In 2001, Kinsey reported on two main explanations behind the unique contribution of mixed-age groupings to children's social development. First, mixed-age programs address the needs of individual children by creating an occasion for the scaffolding of growth opportunities provided by teachers and peers; second, providing an environment of mutual trust and understanding. In a review of research regarding practices that help educators respond to children's individual variability, Darling-Hammond et al (2019) concluded that children in mixed-age programs highly benefit from the opportunity to practice social skills throughout the school day.

In 1999, McClellan and Kinsey assessed the social behaviors of children attending mixed-and same-age classrooms. A pretest of teacher ratings of children's social behaviors showed no preexisting behavioral differences between the two groups. Children were subsequently assigned to either mixed-or same-age classrooms. Findings suggested significant positive effects on children's prosocial behaviors, lower rates of aggression, and social isolation. The researchers later collected data about those children when they reached third grade. As rated by their teachers, children continued to be more prosocial and less aggressive (McClellan & Kinsey,

1999). The social skills of children participating in mixed-age programs were also investigated by Proehl, Douglas, Elias, Johnson, & Westsmith (2013). Analysis of their data which was collected over an 18-month period from teachers and parents revealed that children from mixed-age classrooms were found to be more nurturing toward their peers and be nurtured by them. Children also assumed more responsibility and leadership behavior at home and in the classroom and portrayed more respectful behaviors toward their peers.

An observational study was conducted in 2018 by Kazi, Shagufta, and Fakhra on a sample of children in mixed age-classrooms. This observational study found that older children continuously mentored their younger peers, and helped them with correcting errors and learning tasks. Collaboration among the children was evident during group work and activities and also during free play. The semi structured interviews with classroom teachers also yielded positive outcomes. AS a result of attending mixed-age education programs, researchers reported minimal conflict among the children in across all age-groups.

Purpose of the Present Study

Internationally, grouping children from different age groups is not a new approach for organizing preschool and kindergarten classrooms. Mixed-age grouping exist either out of necessity or due to their perceived benefits to children and society as a whole. In Jordan however, mixed-age groupings in early childhood and kindergarten programs exist but are limited in number. While the effects of mediating variables, such as curriculum quality and class size, on children's development have been sporadically researched in Jordan, mixed-age grouping as an educational and developmental setting has not. The current study is the first in Jordan to examine the differences in social behaviors of children participating in mixed-age and same-age programs.

The main purpose of the present study was to investigate the differences in social behaviors -interpersonal and intrapersonal- social skills of children participating in mixed-age and same-age kindergarten programs. The study also explored gender differences among children in both programs in addition to possible teacher variables as influencers on children's social behaviors. More specifically, the study's research questions are as follows:

- ***Research question # 1:*** What are the most prevalent social skills of children participating in mixed-age and same age kindergarten programs?

- ***Research question # 2:*** Are there statistically significant differences in the social skills of children in mixed-age same-age kindergarten programs?
- ***Research question # 3:*** Are there statistically significant interpersonal and intrapersonal differences between children in mixed-age same-age kindergarten programs?
- **Research question # 4**: Are there statistical differences in the social skills of boys participating in mixed-age and same age programs and for girls in mixed-age and same-age programs?
- ***Research question # 5:*** Are there statistically significant differences in the social skills of children attending mixed-age and same-age kindergartens in relation to teachers' age, qualifications, specialty, and years of experience?

Methodology

Participants

Teachers: Sixty eight (*N*=68) kindergarten teachers participated in this study (*N*=68). The teachers varied with regard to their age (88% over 30), education (59% 2-year diploma), specialty (71% early childhood), and years of experience (76% over 5 years). All participating teachers were female and from Jordan's capital city of Amman.

Children: Two hundred and fifty eight (*N*=258) children were evaluated by their teachers. The children all attended private-sector kindergartens. Of the 258 children, 128 were enrolled in mixed-age kindergartens (64 boys; 59 girls) and 130 in same-age kindergartens (72 boys; 58 girls). The mixed-age kindergartens included an age range of three years (3.8-5.8). For the purposes of this study, only five year old children from the mixed-age classrooms were evaluated by their teachers. The same-age groups were randomly selected from kindergartens with a curriculum similar to the mixed-age sample.

Research Instrument

Social Skills Rating Scale (SSRS)

To achieve the objectives of this study, a 28-item Social Skills Rating Scale (SSRS) was developed by the researcher. The social skills items were clustered into two domains; interpersonal and intrapersonal. The interpersonal domain items described how each child functioned on the social interactive level. The intrapersonal domain items described how each child functioned on the individual level. Teachers rated children social skills on a four-point scale (always, most of the time, sometimes, never).

Construction of the Social Skills Rating Scale

Several steps were implemented in order to determine the validity and reliability of the rating scale: (1) identifying social skills domains and relevant items, (2) scale reviewed by specialist in the field of early childhood education and human development to determine the suitability of the items to their relevant domains, (3) scale was adjusted and modified according to reviewer comments and suggestions. For the purposes of this study, the social skills scale yielded three score: (1) total social skills score, (2) interpersonal skills domain sub-score, (3) intrapersonal skills domain sub-score. The internal consistency reliability for the scale was performed using Cronbach's Alpha. Reliability analysis revealed that the social skills scale was reliable as an overall measure $\alpha = 0.88$; interpersonal $\alpha = 0.77$; intrapersonal $\alpha = 0.86$.

Data Analysis

The data for this study were analyzed using descriptive statistics, *t-tests*, and analysis of variance (ANOVA).

Results

Most prevalent social skills as measured by the SSRS?

The descriptive statistical analysis depicted in Table 1 shows the results of the means and standard deviations for the Social Skills Rating Scale for the total sample. The highest means were for the following behaviors: usually in a positive mood (*M*=3.43), seems happy and joyful at school (*M*=3.39), enthusiastic upon arrival at kindergarten (*M*=3.38), and accepts differences between children (*M*=3.35). The lowest means were for the following: appears lonely (*M*=1.54), seeks attention using acceptable behaviors (*M*=1.61), depends on teacher to meet personal needs (*M*=2.15), and uses positive and non-verbal communication (*M*= 2.38).

The highest means for the interpersonal domain were as follows: accepts differences between children (*M*=3.35), helps children who need help (*M*=3.14), participates in classroom discussions (*M*=3.10), and cooperates with other children during group activities (*M*=3.18). The highest means for the intrapersonal items were as follows: usually in a positive mood (*M*=3.43), happy and joyful (*M*=3.39), enthusiastic upon arrival at school (*M*=3.38), do not remain angry for a long time (*M*=3.24), and expresses anger without hurting others or destroying things (*M*=3.11).

Table 1. Descriptive statistics for social skills rating scale (SSRS)

Social Skills	Mean	Standard Deviations
Interpersonal skills Participates in classroom discussions	3.10	0.83

Social Skills	Mean	Standard Deviations
Capable of waiting his/her turn without complaining	3.14	0.77
Ask for information in acceptable ways	3.24	0.71
Seeks attention using acceptable behaviors	1.61	0.78
Accepts differences between children (race, color, religion)	3.35	0.78
Uses positive non-verbal communication such as smiling and nodding	2.38	0.87
Accepts boundaries and rules set by adults	3.27	0.77
Implements adults requests without hesitation	3.24	0.74
Allows children to play with his/her toys	3.04	0.73
Helps children who need help	3.14	0.76
Cooperates with other children during group activities	3.18	0.71
Encourages children to care for each other	2.89	0.82
Accepts help from others	3.03	0.78
Intrapersonal skills Enthusiastic upon arrival at kindergarten	3.38	0.64
Usually in a positive mood	3.43	0.61
Seems happy and joyful at school	3.39	0.68
Shares other children' happiness and sadness	3.21	0.73
Depend on teacher to meet personal needs	2.15	0.72
Appears lonely	1.54	0.68
Has at least one friend he/she care about	3.10	0.88
Does not remain angry for a long time	3.24	0.75
Clearly expresses desires and needs to others	3.21	0.75
Clearly explains reasons for behavior	3.17	0.78
Clarifies needs in acceptable ways	3.20	0.78
Capable of accepting others	3.14	0.70
Does not fear empowering children	2.85	0.81
Expresses anger in acceptable ways without hurting others or destroying things	3.11	0.88
Approaches other children cooperatively and enthusiastically	3.18	0.79

Social skills of children attending mixed-age and same-age kindergartens.

Table 2 shows the statistically significant (0.000) t-test analysis of differences in means between the social behaviors of kindergarten children attending mixed-age and same-age programs. Analysis revealed that the mean for the mixed-age group (M=3.11) was higher than the mean for the same-age group (M=2.90).

Table 2. *t-test* analysis of differences in social behaviors between mixed-age and single-age

Program Type	N	Mean	S.D.	*t-value*	Significance
Mixed-Age	128	3.11	0.310	4.880	0.000*
Single-Age	130	2.90	0.377		

∗p, 0.05.

Differences in interpersonal and intrapersonal skills between children attending mixed-age and same-age kindergartens.

Table 3 portrays the significant (0.000) analysis of differences in means between the interpersonal and intrapersonal social behaviors of kindergarten children participating in mixed-age and same-age kindergarten programs. The analysis revealed that children from mixed-age programs had a higher mean (*M*=3.08) for the interpersonal domain compared to children in same-age programs (*M*=2.87). The analysis also showed that children from mixed-age programs had a higher mean for the intrapersonal social domain (*M*=3.12) compared to their counterparts from single-age programs (*M*=2.90).

Table 3. t-test analysis of differences in interpersonal and intrapersonal social behaviors between mixed-age and same-age

Variable	N	Mean	S.D.	*t*-value	Significance
Interpersonal					
Mixed-age	128	3.08	0.403	4.002	0.000*
Same-age	130	2.87	0.411		
Intrapersonal					
Mixed-age	128	3.12	0.325	4.995	0.000*
Same-age	130	2.90	0.388		

∗p, 0.05.

Social skills of boys participating in mixed-age and same-age and of girls in mixed-age and same-age programs

Table 4 shows the results of the analysis of differences between boys and between girls from the two different programs. As evident by the t-test analysis, boys from mixed-age programs were rated higher (*M*=3.10) compared to boys from same-age programs (*M*=2.88). Boys from mixed-age programs were rated higher compared to boys from same-age programs on the interpersonal and intrapersonal scales.

Results also revealed significant differences between girls participating in the two kindergarten programs: mixed-age (*M*=3.11) and same-age programs (*M*=2.90). Girls from mixed-age classrooms rated higher on the interpersonal domain (*M*=3.07) compared to girls from same-age programs

(*M*=2.93). Girls from mixed-age programs were rated higher compared to girls from same-age programs on the interpersonal and intrapersonal scales.

Table 4. t-test for differences among boys and among girls in the two programs

	N	Mean	S.D.	*t*-value	Significance
Boys					
Interpersonal					
Mixed-age	68	3.07	0.396	3.640	0.000*
Same-age	71	2.83	0.390		
Intrapersonal					
Mixed-age	68	3.12	0.342	3.331	0.001*
Same-age	71	2.92	0.361		
Total					
Mixed-age	68	3.10	0.342	3.677	0.000*
Same-age	71	2.88	0.354		
Girls					
Interpersonal					
Mixed-age	58	3.07	0.413	1.778	0.078
Same-age	58	2.93	0.434		
Intrapersonal					
Mixed-age	58	3.13	0.302	3.660	0.000*
Same-age	58	2.88	0.423		
Total					
Mixed-age	58	3.11	0.303	3.033	0.003*
Same-age	58	2.90	0.410		

**p,0.05.*

Children's skills in relation to teachers' variables

As can be seen in table 5, analysis of variance revealed significant differences at the 0.05 level between children attending mixed-age and same-age programs in relation to their teacher's degree (*P*=0.000) and specialty (*P*=0.003). Mixed-age children with teachers holding bachelor's degrees were found to exhibit higher levels (*M*=3.149) of positive social skills compared to children from same-age programs (*M*=2.66). Analysis also revealed that in same-age classrooms, children with teachers holding a university degree exhibited more positive social skills (*M*=3.10) compared to associate's degree holders (*M*=2.66). Also, mixed-age program teachers with early childhood education specialties evaluated their children's social skills higher (*M*=3.122) than teachers from same-age programs (*M*=2.98). Also significant were differences between mixed-age program teachers with

other specialties (*M*=3.10) compared to same-age teachers (*M*=2.74). No significant differences were found between teachers' age, years of experience and children's social skills levels.

Table 5. Differences in social skills in relation to teachers' age, qualifications, specialty, and years of experience

	Mixed-Age		Same-Age			
	Mean	**St. error**	**Mean**	**St. error**	**F**	**P**
Age						
< 30	3.129	0.158	2.997	0.079	0.3063	0.581
> 30	3.107	0.032	2.875	0.034		
Degree						
Associates	3.149	0.035	2.662	0.040	48.396	0.000*
University	3.035	0.046	3.105	0.038		
Specialty						
Childhood	3.112	0.034	2.983	0.039	4.576	0.033*
Other	3.091	0.066	2.754	0.048		
Experience						
< 5 years	3.199	0.069	2.997	0.079	0.005	0.945
> 5 years	3.085	0.035	2.875	0.033		

**p, 0.05*

Discussion of Results

The main research objective of the present study was to investigate the differences in the social skills –interpersonal and intrapersonal- of children participating in mixed-age and same-age kindergarten programs. Teachers' age, qualifications, field of specialty and years of experience were also explored in relation to the type of kindergarten program. Study results found significant main differences depending on the type of kindergarten program attended by the participating children.

Social skills of children attending mixed-age and same-age kindergartens.

The analysis of differences in the social behaviors of children participating in mixed-age and same age kindergarten programs yielded significant results. The social skills of children from mixed-age (*M*=3.11) programs were rated higher on the Social Skills Rating Scale (SSRS) by teachers compared to their counterparts from same-age (*M*=2.90) programs. This result supports the multitude of international research investigating similar preschool and kindergarten learning environments (Katz, 1996; Bredekamp & Copple, 1997; Flook, Goldberg, Pinger, & Davidson, 2015; Ronksley-Pavia, Barton, & Pendergast, 2019; Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2020). One of the strongest advantaged of

the mixed-age model is that it generates a family of learners who support and care for one another.

The philosophy of this model directs teachers to support children's social learning and empathic abilities. Accordingly, older children are encouraged to take leadership roles and serve as mentors to their younger peers. It is common practice in mixed-age programs for teachers to directly and indirectly guide older, more advanced children to help the younger ones in the group. In same-age kindergarten programs where children are socially age-segregated, it becomes difficult for them to practice leadership roles and act as mentors. For younger children, it becomes more difficult to learn from their older peers and model their social behaviors.

Interpersonal and intrapersonal kindergarten children's social skills

An examination of the means for the two social skills domains revealed significant differences between the two groups of children in favor of mixed-age groups. The results of this analysis lend support to the syntheses of research that suggests that proactive teaching of social skills in a naturalistic mixed-age environment encourages children's development ((Ansari, Purtell, & Gershoff, 2016; Fronius, Persson, Guckenburg, Hurley, & Petrosino, 2016; Gregory, Clawson, Davis, & Gerewitz, 2016).

Several explanations can be offered to explain this significant result favoring children from mixed-age programs. While children will gain competence at different rates in a mixed-age setting through individualized instruction and practice, it is assumed that age-segregated classrooms impeded it. This may be a main contributor to the lower levels of social evaluations of same-age children's abilities. Referring back to Vygotsky's theory (1978, a, b), it was posited that most learning occurs as a result of various and continued interactions with peers. According to Vygotsky, children's interpersonal and intrapersonal skills are strengthened through continued interaction mediated by developmentally appropriate adult guidance. Supported by this theoretical position, this sample's mixed-age children most likely received direct and indirect instruction to assist their younger peers. This assumption is prompted by the knowledge that mixed-age teachers in this sample received prior training on guiding young children's social skills. It can be concluded that children's behavior benefit from explicit teaching of social skills and opportunities to practice them throughout the day.

Another possible reason for this study's significant result may be due to

the philosophy of the mixed-age program which allows children the opportunity to remain with the same teacher for several years. This result is supported by the Waldorf Steiner philosophy of education (Paull, 2018). In Steiner's model, children attend the same school from age three to preferably eighteen. It is a comprehensive approach that focuses on all aspects of development, specifically social/emotional. This means that teachers get to know each child's progress very well in addition to knowing children's successes and challenges. As a result of extended participation, children generally benefit from living in a mixed-age context. Specifically a context that adopts a comprehensive approach thus leading to stronger development and learning outcomes.

Social skills of boys in both programs and for girls in both programs.

The *t-test* comparative analysis examining the difference in social skills between boys from both programs yielded significant results. Mixed-age boys portrayed higher levels of social skills (M=3.10) compared to their counterpart (M=2.88) on the total scale and on the scale's domains. Also, girls from mixed-age programs portrayed higher levels of social skills (M=3.11) compared to their counterpart (M=2.90) on the total scale and on the scale's domains.

Studies in early childhood education that compare boys and girls with their counterparts are rare (Hatzchristou & Hopf, 1996; Underwood, 2004) mainly due to the history of minimal or diverse empirical differences. Del Boca, Martino, Meroni, & Piazzalunga (2019) reported that girls may benefit from specific forms of early childhood programs such as informal which may include mixed-settings. This notion lends support to the positive social impact found in this study favoring girls in mixed-age programs compared to girls in same-age program. The differences found in this study are not surprising considering the nature of the two kindergarten programs. Mixed-age has a philosophy that focuses on promoting children's individual abilities and social skills. While same-age-programs focus mainly on large group instruction with minimal regard to the individual differences between children. This may largely explain the differences between the two groups of children.

Children's skills in relation to teachers' variables

The analysis of variance for teacher variables yielded significant results for degree (associates, bachelors) and non-significant differences for age and years of experience. More specifically, mixed-age children with

teachers holding associate's degrees were found to exhibit higher levels of positive social skills (*M*=3.14) compared to children from same-age programs (*M*=2.66). Also and in same-age classrooms, children with teachers holding a university degree exhibited higher levels of positive social skills (*M*=3.11) compared to children of teachers with associate's degree (*M*=2.66). Analysis also revealed significant differences in children's social skills in relation to teachers' field of specialty in favor of early childhood education training. The significant results of the analysis support previous research positing the critical role teachers play in shaping children's social abilities, sense of belonging, and beliefs (Guo, Tompkins, Justice, & Petscher, 2014; Gregory, Clawson, Davis, & Gerewitz, 2016). Managing a mixed-age program with children of several ages and diverse needs is challenging for teachers (Benveniste & McEwan, 2000). For this sample, mixed-age teachers received training on how to manage diverse classrooms and to support children's growth and development. This is perhaps the main reason behind the significant differences for this group compared to same-age program teachers.

The significant result favoring teachers with bachelor's degrees agrees with studies completed by Guo, et al., (2014). It is possible to posit that more years of teacher education positively effects children's growth and development. The general position of the research community is that teachers with more education are better equipped for the challenges of teaching, specifically in mixed-age programs. Teacher's education provides them with the expertise to plan and implement developmentally appropriate activities, and to manage classrooms effectively.

The second significant result was for teacher's specialty. This supports and agrees with a multitude of research with similar findings (Colker, 2008; Ying-Chun & Magnuson, 2018). A degree in early childhood education and development provides teachers with the skills they need to develop programs according to age and children's skill level. For this sample, teachers with early childhood degrees, from mixed-age programs evaluated children's social skills higher than their counterparts from same-age programs. Children usually enter relations with a succession of teachers which may have varying effects according to the quality of interactions. It may be posited here, in support of this finding, that this sample's mixed-age kindergarten children have been with the same teacher and community of children for several years. Since the evaluations of children's social skills are mostly positive, it is possible to deduce that the quality of teacher-child

relations were encouraging, based on child development knowledge, and implement a holistic approach to education.

Future Research

Children's social skills development has been extensively studied in relation to a multitude of variables. The present study's significant outcomes encourages future researchers to further examine the possible effects of mixed-age programs on children's development outcomes. The structure of the classroom environment, program curriculum, and teacher strategies can be examined for their possible effects. Further research, qualitative and quantitative, on children's academic, attitudinal, relationships with peers and adults can provide this area of research with support. Longitudinal studies can be implemented to investigate the long-term effects of mixed-age and same-age programs on children's academic performance and achievement.

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