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Kagan Strategies in the Preschool Classroom and their Effectiveness with Engagement and Academic Response

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Abstract

The purpose of this action research was to determine the impact of Kagan cooperative learning practices on academic growth in a preschool classroom. Participants were four and five year olds in a half-day preschool program in an urban setting. Students were a mix of household incomes as well as students who are English language learners. Quantitative data was collected using the Get Set for School assessment. Data was collected after ten small group sessions for 50 sessions. For each group of sessions, a different Kagan engagement strategy was utilized and the Get Set for School assessment was given to track students' progress. Results of the study were inconclusive. Both groups of students made consistent progress at similar rates. Using Kagan strategies could not be specifically linked to student growth.

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Kagan Strategies in the Preschool Classroom

Before a teacher can teach literacy, math, writing, science, any subject for that matter, they need to have engagement with their students. Without engagement, a perfect lesson can be lost due to student's lack of interest and involvement. Engagement has many different definitions, depending on the context. Merriam-Webster defines "engaged" as being involved in an activity (occupied, busy) as well as and very interested (committed) (Merriam Webster, 2018). Everett (2015) explains student engagement as a multidimensional, interrelated, observable behavior, internal cognition, and emotion. Everett continues by saying research in earlier years focused on participation-identification model focusing on quality of instruction and student abilities, However, current research has been focusing on academic engagement, social engagement, cognitive engagement, and affective engagement have added four important dimensions to student engagement. When it comes to engagement in the class, you must have both involvement and interest. A student can seem engaged by following along with their eyes as the teacher presents the lesson, but that does not mean the student is truly engaged. What the teacher is presenting could be going in one ear and out the other. So the question stands, is there a way that a teacher can apply engagement strategies to everyday lessons that get as many students involved and interested as possible?

Engagement is something that a teacher must always consider when preparing their lessons because it has an effect on student learning as well as behavior. Engagement practices become part of a teachers flow, almost becoming second nature to an experienced teacher. A teacher should want to find strategies that help increase the level of engagement but also find engaging ways lead to retaining academic knowledge. Multiple creators and contributors have come up with methods and designs of collaborative learning. This study is looking specifically at

Kagan Cooperative Learning strategies and its effectiveness for whole class engagement, which could lead to students' actively participating and retaining information. Kagan methods were selected because it has multiple structured strategies of engagement that can be adjusted to all subjects of study, any grade level, as well as being used in whole group and small group settings.

Review of the Literature

Cooperative Learning

Cooperative learning has been something that researchers have been studying for years. Cooperative learning is a teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. Each member of a team is responsible for not only learning what is taught, but also for helping teammates learn, thus creating an atmosphere of achievement (Balkcom, 2018). There are different methods of cooperative learning that can be structured in a variety of formats, depending on the age, topic, and overall environment and learning the teacher is targeting. Some methods involve assigning roles to students while other methods are random spitfires of information. Cooperative learning is a subject that is one giant category with many sub categories. Those looking to use cooperative learning need to assess what is their end goal and how will they get there.

Kagan Cooperative Learning Strategies

Kagan Cooperative Learning Strategies are a set of practices for teachers to use in their classrooms. When Spencer Kagan was conducting his research, he was looking at multiple factors that influence classroom success. He was looking at behavior, engagement, different levels of ability, and participation. Kagan (2015) has been studying cooperation since 1967 and claims that human behavior is influenced directly by situation. According to Kagan (2002),

teachers have the power to manipulate classroom situations in order to prevent misbehavior. Kagan's (2015) cooperative learning structures work to control the way students interact with others. Kagan's (2015) cooperative structures engage students, foster positive interdependence in the classroom, and help prevent disruptive behavior . According to Kagan (2002), it has traditionally been the teacher is the hardest working person in the classroom, but Kagan thought the students should be working just as hard as the teacher.

David and Roger Johnson (Dean, 2012) use five elements to define their ideas of cooperative learning. They say in order for cooperative learning to be effective the learning must have positive interdependence, face-to-face interaction, individual and group accountability, interpersonal and small-group skill, and group processing. Kagan believes that schools and classrooms can experience the positive impacts on the following areas through his methods. These include increased academic achievement, improved ethnic relations, enhanced self-esteem, creating a more harmonious classroom climate, reduced number of discipline problems, and support for developing students' social skills and character virtues. Kagan (2002) says is the underlining factor in achieving such results is through engagement.

Kagan Structures

Kagan created and modified versions of cooperative learning for the classroom. Through his published books, Kagan list strategies that can be applied to teacher's lessons to incorporate cooperative learning throughout lessons. Many structures can be used in a variety of grade levels. Some strategies build on one another to create a different strategy completely. The following strategies were selected and are the ones being used for this study because these practices can realistically work in a preschool classroom to the ability of four-year-old students.

Round Robin. Within teams, students go around and respond to proposed question that has the possibility of multiple answers. This method can be done in a circle of desks, at a single table, or on the carpet into predetermined groups. Round Robin can be continuous or a single round, and can include roles for older grades or just simple basic structure. Through Round Robin, students: share in their teams, receive equal turns, hear the ideas and answers of teammates, and are held accountable to teammates for staying on task (59 Kagan Structures, 2015).

Rally robin. The teacher poses a problem to which there are multiple possible responses or solutions. Similar to Round Robin, students respond back and forth with their designated partner. Again this practice can be done at a desk, table, or with a partner on the carpet. During this strategy, students: are actively engaged either sharing or listening, regularly express themselves, must participate, must take turns, practice respectful listening, actively listen so that they may respond appropriately, hear classmates' thoughts on the content or issues, and remember the content more by verbalizing answers (59 Kagan Structures, 2015).

Stand up, hand up, pair up. Students raise their hand and find a partner. They high five the partner and share their response to the question or a finish product. Once each partner has shared, they raise their hand again, find someone else with their hand up, and repeat the process. This strategy can be done in whole group and in small group settings, as long as there is a designated area to move around in. Stand up, hand up, pair up is a great structure to use during the share time when you want students to briefly share with multiple classmates (59 Kagan Structures, 2015).

Timed pair share. The teacher asks a question that students may elaborate on, states how long they will have to share, and provides think time. In pairs, partner A shares while partner B

listens without talking. The teacher tells Partner B how to respond. The response can be simply to copycat the teacher's response. Alternatively, the response can be a spontaneous response by the listener. Partners switch roles. Partner B shares while partner A listens, then partner A responds Through this strategy, students: are actively engaged either sharing or actively listening, regularly express themselves, must participate and take turns while practicing respectful listening, actively listens so they may respond appropriately, hear classmates' thoughts on the content or issues, and make personal connections to the curriculum. (59 Kagan Structures, 2015).

   Rally coach. The teacher prepares a set of problems for the students provides just one set of materials for the two students to share. In shoulder partners (or partner pairs previously set up), Partner A solves the first problem, verbalizing the steps or procedures aloud. Partner B acts as the coach. Partner B watches, listens, and checks. If partner A gets an incorrect answer or needs help, partner B coaches. If partner A solves the problem correctly, Partner B praises. Students switch roles and Partner B now solves the next problem, talking it out. Partner A now acts as the coach: watching, listening, checking, coaching, and praising. Rally coach encourages students: to verbalize their problem-solving strategies, to be held accountable to their partners for staying on task, to have coaches as immediate peer-tutoring resources, and to give and receive immediate and specific feedback (59 Kagan Structures, 2015).

How and When to Use Kagan in the Classroom

   Through Kagan's Cooperative Learning book, Kagan presents the layout and steps for classroom teachers to begin using his strategies. Teachers must first tackle the idea of setting up groups and pairs of students who would benefit from working together. Kagan notes that two students who are lower achieving academic would not be a good pair because neither one could

possibly be guided to the correct answers. Instead, groups and pairs should be different ability

levels. This way the higher students could possibly coach the lower students. Kagan states that

the ideal group is a group of four, though these practices can be adjusted to support groups of

three and five as well. An ideal group of four students would consist of a low academic student,

medium low, medium high, and a high achieving student. The seating around the table would

have to the two middle students between the highest and the lowest student. This is done because

the highest and lowest academic students are more likely to benefit and learn from the middle

students, instead of them experiencing the large academic gap between the two. The same can be

said for students of different languages. If a classroom has students who speak different

languages, the teacher should separate languages and create groups with multiple languages

spoken which at least one English speaking student in the group. Similar idea applies to

languages, with different ELL (English language learner) levels in each group. Kagan also

provides tools and templates that can be placed at desks or tables to help with organization and

keep lessons moving by working with multiple partners while still placed in the same area. The

tools are both an instructional tool as well as a classroom management tool that has multiple

purposes that can be adjusted for every lesson. Kagan created a "manage mat" that has arrows

pointing to "shoulder partner" and "face partners" along with 1, 2, 3, and 4 as well as A and B.
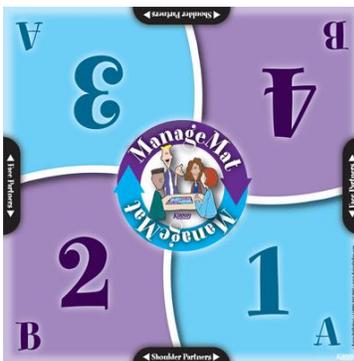

Figure 1. Manage Mats.

Kagan strategies are like traditional strategies, in which they can be applied in different situations throughout the school day. They can be used during the introduction of a lesson, for example, "Turn to your shoulder buddy and state anything you know about oxygen, starting with buddy A." They can be used in the middle of lesson, for example, having students round robin the name of states on the west coast. Finally, you can use Kagan methods at the end of a lesson, for example, a teacher could have students "stand up, hand up, pair up" to share their writing lesson for the day with multiple peers.

An example of how this would look in a classroom would be to imagine a kindergarten teacher doing a quick rhyming exercise. The teacher could present the task to "rally robin" words that rhyme with dog for 15 seconds with their shoulder partner and partner A goes first. This is one simple direction; the teacher is able to name the task, identify who every student's partner is while removing the opportunity for students to argue who goes first, and has a time frame of when the task is over. Once the task is over, the teacher can then modify the lesson and switch up the working pairs. The teacher does this by instructing students to now work with their "face partners" and having partner B go first on the second task. The teacher could switch up the lesson again by having the students complete "round robin" style around the whole table and have table member 3 start for the third task. Through these Kagan methods and a simple rhyming exercise, over a very short period of time, one student worked in three different sets of students. Through this exercise overall, at least 25% of students are actively participating at one time by speaking while the other 75% of students are participating by listening. Through Kagan structures, students are held accountable by their peers to be actively participating. If a student is not listening, the practice could fall apart. The students learn that they must work together in their group for the task to be successful (Kagan, 2015).

Other/Traditional Methods of Engagement

Almost any interaction a teacher is having with a group of students is an act of engagement. Too often than not, when young students are using sociodramitic play and they are pretending to be teachers in a classroom, they often imitate the teacher by asking students to raise their hand to answer a question (Jablon, Dombro, Dichtelmiller, 2007). It is something that is embedded in the idea of what you think of when you think of teachers. However, with that traditional practice, raising a hand to answer a question, only one student is actively participating (Kagan, 2015). Other students may be listening as well, but what is there to stop them from having their minds wonder? A benefit of raising a single hand would be the teacher and student are having a direct connection in which it may be easier for a teacher to note is a student is understanding the concept or idea being taught. It also allows the student the opportunity to shine in front of their peers in the classroom. But, those positives can also be a negative, depending on the student or situations (Kagan, 2015). Some students feel anxious when speaking in front of a large group of their peers or feel on the spot. Because of this anxiety, the student may shut down, avoid these situations, or lead to disruptive behavior as a way of escape (Jablon, Dombro, Dichtelmiller, 2007). When there are negative reactions such as this, the teacher does not have a clear idea of the students' knowledge.

Another method that is often used in a traditional setting is working in pairs. Though the thought behind this is full of good intentions, students need structure. By throwing two students together with no real reasoning or strategy, the teacher is losing out on a opportunity to find real engagement and growth. There should be more thought behind each pair and the teacher should consider the students' academic achievement, language, strengths, and abilities to make the most

out of every pairing. When a teacher creates an ideal pair of student partners, the weight of teaching comes off the teacher's shoulders and unknowingly onto the students.

Benefits of Using Cooperative Learning

Social skills are very important for preschool age students to develop and social interactions are key to developing those skills. The National Academy of Sciences reported that 60% of children enter school with the cognitive skills needed to be successful, but only 40% have the social-emotional skills needed to succeed in kindergarten. Research has shown that children's emotional and behavioral adjustment is important for their chances of early school success. However, the emphasis on cognitive and academic preparedness often overshadows the importance of children's social-emotional development (Raver, 2002). According to research done by Joblon, Dombro, and Dichtelmiller (2007), children at the age of four are developing social skills appropriately by demonstrating the following skills: regulating their own emotions and behaviors, taking care of their own needs appropriately, establishing and sustaining positive relationships, and participating cooperatively and constructively in group situations. Kagan (2015) states that through collaboration, students interact with multiple students on any given day, giving all students the opportunity to improve on their social skills and interact with those they may not have chosen to work with.

By working with unfamiliar peers, students are exposed to different languages, cultures, and provided the students the opportunity to work and understand something that is not of their own. As these social skills improve, the classroom becomes unified, working towards similar goals. Johnson and Johnson (1991) state that to understand mathematics, children must be cognitively active while they learn. One way of being cognitively active is to participate in cooperative learning groups. While working cooperatively, children discuss and explain what

they are learning. Catron and Allen (2003) claimed that the peer interaction changes children's cognitive development from egocentric thinking to decentered thinking, from concrete to abstract, and from simple to complex.

Cooperative learning takes a classroom where just one person (the teacher) is the sole provider of instruction and conversation to a whole group of individuals working together to help better one another, even if it may be subconsciously. When children are working together in a cooperative manner, they develop an understanding of the harmony of purpose of the group and of the need to help and support each other's learning (Sharan & Shaulov, 1990). In an article by Robin Gillians (2002), they explain that cooperative learning can promote growth in collaborative writing (Dale, 1995; Zammuner, 1995), problem solving in mathematics (Webb & Farivar, 1994), comprehension in reading (Stevens & Slavin, 1995), and a conceptual understanding in science (Lazarowitz & Karsenty, 1990). The best part about cooperative learning is how it is something that can be done at any age or subject. Alfie Kohn (1993) states that, "the opportunity to collaborate ought to be the default condition in the classroom. Cooperative learning works with kindergartners and graduate students, with students who struggle to understand and the students who pick things up instantly; it works for math, science, , language skills, social studies, fine arts, and foreign language"

Disadvantages of Using Kagan Specific Strategies

With Kagan, it takes time and a lot of prep work to get the ball rolling. Before specific lessons even start, a teacher must look at their classroom make up and divide into possible pairs and groups. Looking at their own classroom, they must consider the whole day through all subject areas as well. Obviously, different students may prosper at different subjects and skills, so there is no possibility that the teacher can create a perfect set up for every subject. The teacher

just needs to use their best judgement, try options, assess the lesson and decisions made, and move on from there.

Once the teacher has the pairing and group ideas, they need to look at the lessons and think about what strategies would work best. In Kagan's (2015) book, there are different strategies for multiple subject areas. There is no one size fits all strategy that can be applied to ever lesson that will have a success rate. There are many that can be adapted, and others are more challenging. However, once the teacher has selected the method, it is then time to teach the practice before the lesson. Students need to understand and visualize what they will be doing, and cannot be thrown into the strategy and expected to apply that to the new academic knowledge they just learned.

Methods

Participants

Student participants in this study are preschool students who are between four and five years old. They attend a half-day preschool. The morning class consists of 17 students while the afternoon class has 13 by the completion of the Get Set for School assessment was first given. The students have a range of household income between poverty up to what is considered middle class. The following tables show a breakdown of student participants for the duration of the study.

Table 1

Students Gender

	Girls	Boys
AM	10	7

PM		6	7

Notes: Identification based on parents answers for school registration

The gender division will not be a factor in the results of the study. The gender mix of the classroom is typical and comparable to classrooms past. The morning class is 59% female while the afternoon class is 46% female. It is common to have more of one gender than the other and varies year to year. Gender is not an academic capability factor in this study. Both genders do not have debilitating qualities that would inhibit them from participating fully in classroom activities and lessons.

Table 2

Student Race

	Caucasian	Black or African American	Hispanic	More than 1 race
AM	5	10	1	1
PM	2	5	2	4

Notes: Identification based on parents answers for school registration

Students' race in the classroom is typical for the growing urban community the school is located and varies year to year. Caucasian students make up 23% of the total racial profile of the classrooms. Black or African American students me up 50% of the racial profile. The racial profile of the classrooms is also skewed because of students identifying, as multiple races were not specific. Race is not a factor in the study because all races are capable of learning.

Table 3

Students Languages Spoken at Home

	English	Spanish	French	Ewe	Laos	Swahili
AM	14	0	2	1	0	0

PM	8	2	0	0	1	2

Notes: Identification based on parents answers for school registration. There was no question that asked parents if multiple languages were spoken at home.

Language is a factor for the results of the study. The lessons were presented in English and with almost 27% of students speaking a different language than English at home could influence the students' receptiveness of the lessons. Students could possibly not understand the lessons because of a language barrier. English Language services are not provided to preschool students at this school, even if English is not their primary language. Results could also be skewed because a student could speak multiple languages (including English) but not be acknowledged. Receptive language was not assessed before or during this study, which could also be a factor in the results.

Table 4

Services Provided to Families

	Food Stamps	WIC	Title XIX	No services that school is informed of
AM	4	2	2	13
PM	9	6	6	0

Notes: Identification based on parents answers for school registration. Some families are provided multiple services

Socio-economic status could be a factor in the results of the study, but were not specifically looked at. There is a difference between the morning and afternoon class and the services provided. With 76% of the morning class claiming that they are not provided services and no students in the afternoon class claiming services. In addition, some students are claiming multiple services, so no one service can pinpointed as a possible variable. Socio-economic status

often does have an influence on students' academics, and a separate analyzation of this could be very informative.

Data Collection

During the first four weeks of school, the teacher assessed the students' current level of knowledge based on the Get Set for School Assessment. After the assessment was completed, the teacher divided the students in each class into two equal groups based on assessment performance (both groups will have similar amounts of higher and lower performing students). The teacher used traditional methods of teaching with one-group and specific Kagan strategies for another. Using one strategy for 10 small group sessions, the teacher assessed the rate of progress for the students. Same cycle was be repeated after 10 sessions after introducing a new Kagan strategy. There was 50 small group sessions, and five different Kagan methods used. With this plan of action, the teacher was able to compare growth from strategy to strategy as well as the rate of growth for the group receiving traditional methods vs. the group that is receiving the Kagan strategies. Teacher observations and judgement will be used for qualitative data.

Engagement strategies were taken from the book *Cooperative Learning for Primary* by Melissa Wincel. Get Set for School Assessment was used because of the range of skills assessed on the assessment and the current curriculum used in the classroom. This is a tool to assess students' academic growth. Independent variables in this study include: traditional teaching practices such as raising hands to share and teacher direction and student response and Kagan strategies being used during whole group and small group settings. These strategies include: round robin, rally robin, think pair share, rally coach, and timed pair share. Dependent variables are students' level of engagement to traditional teaching strategies and to Kagan strategies as well as their academic growth after being exposed to both teaching styles.

Findings

Data Analysis

Get Set for School Assessment was completed after the fourth week of school. The test was conducted in a one on one manner with the teacher asking the students the questions. Some questions require images for support. In the literacy portion of the assessment, the teacher was assessing the following skills: letter identification, describing and comparing, nursery rhymes, rhyming, identify objects with conceptual knowledge, and segmenting and blending words and sounds. The math portion of the assessment consisted of the following skills: number identification, route counting as well as one to one counting, shape identification, positional words, ordering, size comparison, patterns, and measuring.

Table 5

First Get Set for School Assessment Results

	Traditional Group		Kagan Group	
	Literacy	Math	Literacy	Math
AM	42%	50%	40%	50%
PM	40%	51%	44%	45%

Notes: Results before study began, therefor small group settings where either strategies would be used, have not been conducted yet. Scores were rounded to the nearest percent.

The test scores collected are typical scores for this specific classroom year to year. There has never been a class (referring to morning or afternoon) that consistently scores higher than the other. Both classes are receiving similar instruction with the same content and materials. All literacy scores are within 4% of each other. Math scores are all within 6% of each other, with the biggest difference being between afternoon Kagan group and afternoon traditional group.

Table 6

Small Group Sessions 1-10 Using Rally Robin

	Traditional Group		Kagan Group	
	Literacy	Math	Literacy	Math
AM	44%	53%	41%	52%
PM	42%	53%	46%	46%

Notes: With rally robin, students and their partners went back and forth answering the question. Ex. of the questions were "go back and forth counting as high as you can until the timer goes off." Scores were rounded to the nearest percent.

Progress was made in every group, in both the Kagan and traditional groups. Literacy group receiving the traditional practices went up 2% in both morning and afternoon groups. Kagan literacy group practicing Rally Robin went up an average of 1.5% between the two groups. Traditional math groups score increased an average of 2.5% between the morning and afternoon groups. Kagan math groups practicing Rally Robin increased an average of 1.5% between the two sections. All scores had minimal difference between the two methods. It is inconclusive if Kagan was a factor.

Table 7

Small Group Sessions 11-20 Using Timed, Pair, Share

	Traditional Group		Kagan Group	
	Literacy	Math	Literacy	Math
AM	46%	54%	43%	55%
PM	45%	53%	48%	48%

Notes: In pairs, students share with a partner for a predetermined amount of time while the partner listens. Once completed, the pair switch roles. Scores were rounded to the nearest percent.

All groups made growth. Traditional groups for literacy made an average growth of 2.5% for literacy and half a percentage point for math. Kagan groups practicing Think, Pair, Share made an average of 2% in literacy and 2.5% in math. In math, the students using Kagan made 2% more growth in math. However, students using traditional methods made slightly more growth in literacy. Because all scores had minimal difference between the two methods practiced, Kagan could not be determined to be a factor.

Table 8

Small Group Sessions 21-30 Using Round Robin

	Traditional Group		Kagan Group	
	Literacy	Math	Literacy	Math
AM	47%	56%	44%	56%
PM	47%	54%	50%	50%

Notes: In small groups, students go around in a circle answering a question until the amount of time is up or amount of responses are reached. Scores were rounded to the nearest percent.

Students made growth again after 30 small group sessions. Traditional student made an average of 1.5% increased score for literacy and math. Kagan students using Round Robin in small group also made 1.5% growth in both literacy and math. With both groups making the same amount of growth, Kagan was determined not be an influence of students' engagement leading to retention.

Table 9

Small Group Sessions 31-40 Stand Up, Hand Up, Pair Up

	Traditional Group		Kagan Group	
	Literacy	Math	Literacy	Math
AM	50%	57%	47%	59%
PM	49%	56%	52%	52%

Notes: Students raise their hand and find a partner. They high five the partner and share their response to the question or a finish product. Once each partner has shared, students raise their hand again, find someone else with their hand up, and repeat the process. Scores were rounded to the nearest percent.

After 40 group sessions, students in both groups made progress on their Get Set for School Assessment. Traditional students made an average of 2.5% growth in literacy and 1.5% growth in math. Kagan students practicing Stand Up, Hand Up, Pair Up made 2.5% growth in both literacy and math. Though students using Kagan made a whole percent growth in math, it was not enough progress to contribute to Kagan strategy having an affirmative effect.

Table 10

Small Group Sessions 41-50 Rally Coach

	Traditional Group		Kagan Group	
	Literacy	Math	Literacy	Math
AM	53%	59%	50%	60%
PM	50%	58%	54%	55%

Notes: Student A solves a problem while explaining reasoning while partner B watches, listens, and possibly gives input. Once completed, students move on to next problem and switch roles. Scores were rounded to the nearest percent.

After 50 small group sessions, students in both traditional and Kagan continued to make progress. Students in the traditional group made 2% growth in both literacy and math. Students in the Kagan group using the method Rally Coach made 2.5% growth in literacy and 2% increase in math. The difference between the two groups is minimal, leading to Kagan not being a concreate influence on students growth.

Table 11

Pre and Post Study Assessment Results

	Literacy		Math	
	Pre	Post	Pre	Post
Traditional AM	42%	53%	50%	59%
Traditional PM	40%	50%	51%	58%
Kagan AM	40%	50%	50%	60%
Kagan PM	44%	54%	45%	55%

Notes: Results of this test were completed after 50 small group sessions. Scores were rounded to the nearest percent.

Findings from the study show that students in both the traditional group and the Kagan group made steady growth. The average growth in literacy for both traditional morning and afternoon class was 10.5%. Kagan literacy groups increased an average of 10%. Traditional math groups increased an average of 8% while Kagan groups increased 10%. All results had such little difference between the groups that it is difficult to say that using Kagan had an influence in the results. Based on those numbers, one cannot concluded that Kagan had a direct effect on this classroom specifically.

Discussion

The difference between the two groups was minimal, with only half a percent point between the literacy groups and a 2% difference between the math groups. With such a small difference, one could not determine if Kagan had an influence on engagement leading to retention of knowledge for this study. All groups made similar amounts of progress week to week, with different groups making more growth than others at various times. Making groups finished the study in the same order they began it. The afternoon Kagan group began the study with the highest scores for literacy and finished the study with the highest literacy score but also began the study with the lowest scores in math and completed the study with the lowest scores in math. The morning Kagan group began the study with the lowest scores for literacy and completed the study tied for the lowest scores with the afternoon traditional group.
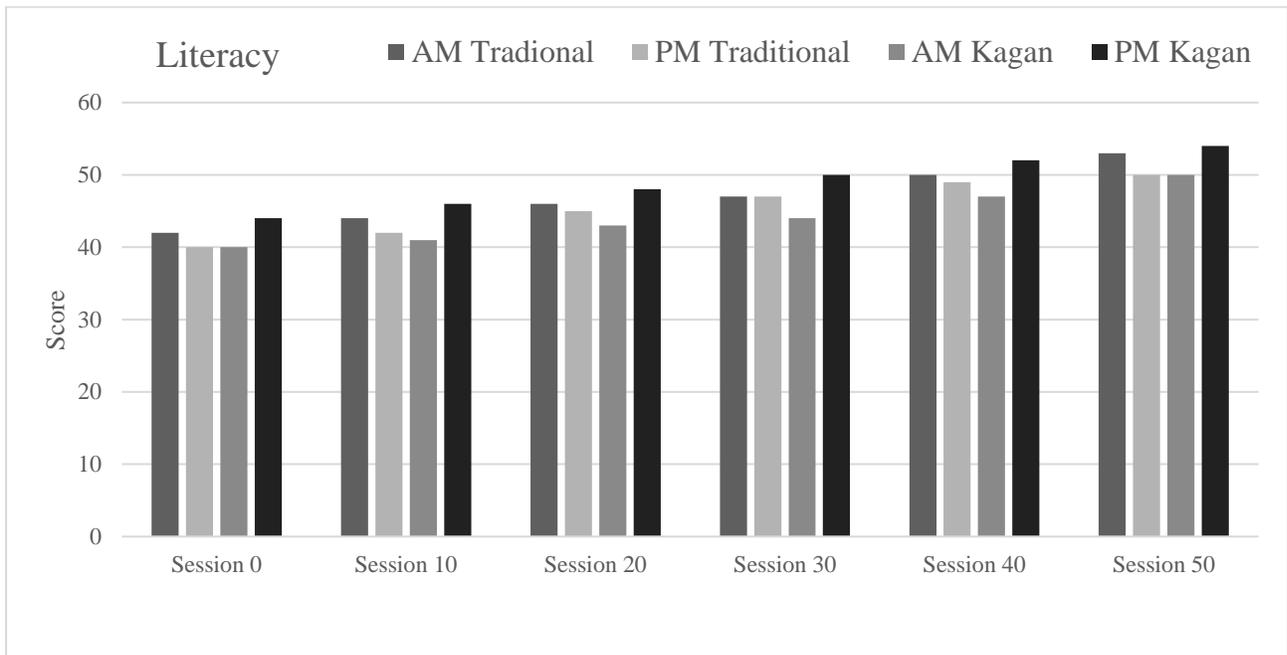

Figure 2. Literacy results.

All four groups made consistent growth in literacy throughout all 50 sessions. Afternoon Kagan students started the study with the highest scores for literacy in comparison to the three

other groups and finished the study with the highest scores. The morning traditional group began

the study with the second highest scores, and finish the study with the second highest scores. The

afternoon traditional group and the morning Kagan group began the study with similar scores

and finished the study with comparable scores; however, throughout the study the morning

Kagan group was consistently scoring below the afternoon traditional group until the final ten

sessions. All four groups began and finished the study in the same order, which shows that

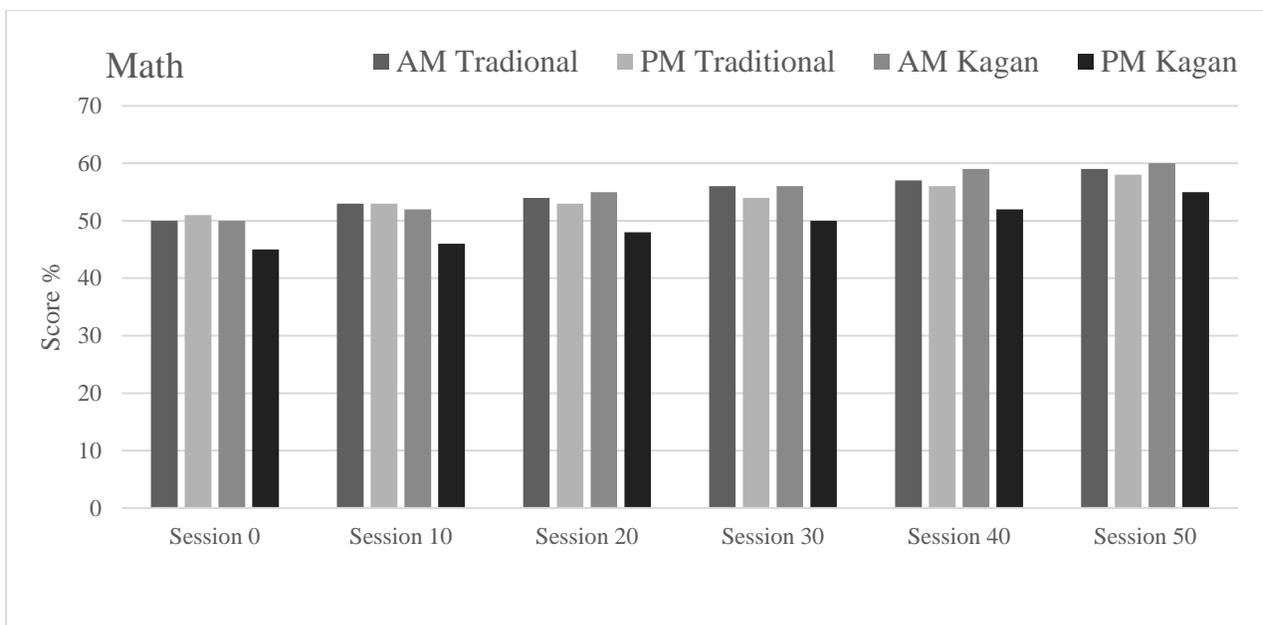Kagan was not an element in students' engagement in retaining the lessons.

Figure 3. Math results.

At the beginning of the study, the afternoon traditional group had the highest scores, just

a slight advantage over the morning traditional group and the morning Kagan group. The

afternoon Kagan group had the lowest score, trailing the nearest group by 5%. Throughout the

study, the three highest groups battled back and forth for the highest score, with small percentage

difference between them the whole time. By the conclusion of the study, afternoon Kagan group

had the highest scores, followed by morning traditional, afternoon traditional, and afternoon

Kagan rounding up the groups. All the groups began and finished the study in comparable positions; leading to the concept that Kagan was not an influence in student engagement.

Teacher observations and reviews of the strategies were generatively positive. The teacher reports feeling that strategies did get more students involved at one time and gave all students the chance to share their voice. It lead to students interacting with others that they may not work with on a regular bases. This lead to a feeling of a classroom community. Teacher reports that it also took some of the teaching off their shoulders. The teacher reported they did not have to be speaking towards their class during a majority of the lessons. When the teacher would be supporting one or two students, they felt that other students who needed help were getting the support from their peers.

Limitations of the Study

There were many limitations of the study and multiple factors that should be considered when analyzing the results. A study of this concept should be done in multiple classrooms and possibly over a longer period of time, whether that be over the course the whole school year and conducting the study over multiple years. The timing of the study is important and looking at the fact that this is a preschool classroom and many of the students have never experienced school before. The first few weeks of school are focused on the rules and routines of the classroom. Because these are not in place at the beginning of the school year, the overall flow of the classroom is much slower than by the conclusion of the study. We could have seen more growth over the second half of the year rather than exclusively looking at the first semester because less time would have been spent on expectations and more would have been focused on academics.

Further Study

Many factors would be considered when conducting a further study of this content area. More information could be analyzed if the study lasted the course of the entire school year. There are so many factors that slow down the learning the first few weeks of school including learning the rules and routines of the classroom as well as this being the first school experience for many of the preschoolers. In addition, the study could benefit from being conducted the second half of the school year rather than the first because of those issues as well. The information could not be generalized based on one classroom alone. Further study could be conducted on multiple classrooms to see if results were different. Though English language learners were a factor in the study, Kagan strategies are designed to help support ELL students. However, for purpose of the study, it may support researcher to divide the ELL students into their own category to see if there is a noticeable difference in growth between English speakers and none English speakers. The data could have possibly shown that English speakers made more growth than non-English speakers, or vis versa.

In further study, participation level could be used as quantitative data by having a researcher numerically observing the classroom and tallying up the participates during a period of time. A researcher could track participation levels for both traditional methods and Kagan method groups. Then data could be analyzed to see if there was a different between the two groups. Through research like this, even if there was not a big difference on the Get Set for School Assessment, there could have possibly been a difference in participation levels.

An additional factor that would have been notable to assess would be student questionnaires and opinion surveys. Though it may be difficult in a preschool classroom, this study could be done with older students. Because enjoyment can also be tied to engagement, it

may be beneficial for teachers to know which way the students prefer to learn. Data could be used to assess if there is a correlation between enjoyment and higher test scores. Teachers would like for their students to enjoy the lessons they are teaching.

Conclusion

Though the study did not prove or disprove that Kagan strategies concretely lead to faster academic growth, they did bring presentation variety and communication to a classroom. Engagement is a very important factor when it comes to classroom presentation as well as behavior management. Engagement can be improved through cooperative learning practices. Cooperative learning provides students more opportunities to participate in lessons. In this study, the classroom teacher reported that Kagan cooperative learning strategies did generate more students participating at one time in comparison to traditional teaching methods. This also lead to a more harmonious classroom climate. It lead to students working with other students that they may not have interacted with before the teacher intentionally placed them together. The teacher also reported that using Kagan helped support English language learners. Researchers show that cooperative learning has positive effect on individual students as well as the classroom overall.

Kagan does provided a variety of methods a teacher can use throughout their day, no matter the grade or subject. It can be used in whole group or small group settings as well. If a teacher is considering incorporating Kagan structures in their classroom, it is important to enforce that the teacher be diligent and dedicated and to conduct the methods with fidelity. The methods will not have the full effect if the teacher in not strategical and intentional.

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