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## Preschool Number of the Day

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## **Preschool Number of the Day**

Christine Shepard

Capstone Project: An Action Research Project

Northwestern College, Orange City, Iowa

### **Abstract**

This action research project was completed by a researcher who was interested in the preschool math curriculum. More specifically, in the numbers and how their relationships including one to one counting and producing the amount when given a number in preschool. This researcher has taught preschool for 7 years. The students were able to participate in the study. One class of students did not receive the number of the day lessons, while the other students received the lessons throughout the entire school year. The study was part of our learning standards aligning to the Iowa Early Learning Standards and Gold Teaching Strategies. The students were asked to count one item at a time until they skipped a bear or missed/ said a number that was not next in the corresponding order. The study also had the students produce the amount on the card with the same bears in random order. These learning standard assessments were given at the beginning of the year and at the end of the year to see if the number of the day was successful in those lessons. The research was conducted to result in further lessons in the number of the day is proven to be successful.

*Keywords: Delays, number of the day, letter of the day, Enhanced Alphabet Knowledge,*

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### **Preschool Number of the Day**

Children can develop an interest in counting, sorting, creating shapes, seeing patterns, measuring, and estimating during their time in preschool (Clements, 2001). Preschool math that is of high quality does not force elementary math on younger students (Clements, 2001). Instead, it encourages kids to play with, explain, and think about numbers as they interact with their surroundings (Clements, 2001). Math programs for preschoolers are lacking. There ought to be something accessible to pupils that do not obstruct their learning time. It must be purposeful and inspiring.

Frequently, mathematics takes a back seat to literacy. Math is equally vital for those who appreciate math and ultimately pursue a profession in it. Early intervention is crucial for any issue. Preschoolers are prepared for arithmetic and number instruction. Without a question, the math abilities youngsters acquire in preschool serve as a foundation for the rest of their lives. It is vital to prepare youngsters' mathematical minds for the future and prepare them to build on this information throughout their kindergarten years and beyond. The brains of preschoolers undergo tremendous development during learning (Clements, 2001). Experience and learning influence the shape and organization of preschoolers' brains, and preschoolers' brains expand more as a result of complex activities, not simply skill acquisition (Clements, 2001)

This study endeavor aims to assist youngsters in learning numbers and their roles before kindergarten. This allows the youngsters to enter kindergarten prepared and with an understanding of how numbers function. Students' confidence in mathematics will reflect their performance as they enter kindergarten, providing them with the necessary satisfaction.

The research is incomplete or contradictory because there is no particular information on the number of the day lessons. There is a great deal of information about preschool curricula, but nothing about the length of the school day outside of the older grades. Few articles were not outdated. The data has not been generated. Some of the literature will not be used since it was not entirely relevant to the subject. There was a dearth of information from the United States, and some of the sources were conducting a study in other countries.

The number of the day does impact scores on number recognition, number to quantity, and counting to build a sum for educating preschool pupils about the purposes of numbers. The data indicates every category is increasing. The Number of the Day is a simple daily lesson can be completed in a matter of minutes and demonstrates to children the growth of data over time.

Proficiency is achievable when instruction is designed to surface and build knowledge rather than encouraging students to merely acquire and store knowledge; the efficacy of this type of ambitious instruction depends on how it is designed, including how tasks are organized, connected, and structured. (McMahon, 2020) For teaching and learning to be effective, it is essential to build on existing knowledge and employ many instructional facets and tactics.

## Review of the Literature

### Alphabet Knowledge and Its Success

In the study by Piasta (2013), children of preschool age ( $n = 58$ ) were each given a random assignment to either receive instruction in letter names and/or sounds or numbers in a small group setting (treated control). Education in the alphabet followed either of the two methods are currently used in early childhood classrooms: instruction combines learning the letter name and its sound or instruction focuses simply on learning the letter's sound. This is also discussed later by Jones (2013), Children were pre-tested on the alphabet, phonological awareness, letter-word recognition, emerging reading, and developmental spelling measures before and after participating in one of the thirty-four 15-minute lessons were made available to them. The findings point to the benefits of teaching children letter names and sound together as a means of fostering letter sound acquisition in young children. It did not appear that the benefits will generalize to other emerging literacy abilities (Piasta, 2013).

To the study by Robins (2014), learning about the different letters in the alphabet is an essential part of beginning literacy. We investigated the potential children's speech reflects their letter knowledge, as well as the chance parents' speech can offer information about the letters in the alphabet. We discovered this by analyzing discussions between parents and children ranging in age from one to five. (MacWhinney, 2000). We observed alphabetic order influenced both the use of individual letters and letter sequences. Children's utterances were influenced by the frequency of letters in children's books after the age of two. Whereas, parent utterances were influenced by the frequency of letters in children's books across the entire age

range tested. Some aspects of letters are crucial to literacy were discussed, such as their shapes and how they are associated with words; but, the sounds letters make were not highlighted. It is very helpful to gain crucial information about the home literacy environment by describing these patterns and how they develop over the course of the preschool years (Robins, 2014).

The study by Jones (2013), showed the ability to recognize individual letters of the alphabet is universally acknowledged as the most powerful and enduring indicator of later literacy accomplishment. The application of recent research has implications for improving the efficiency of imparting alphabet knowledge to young children. Enhanced Alphabet Knowledge instruction (EAK) is a method of practical instruction early childhood educators can use to organize, plan, and teach the essential skills of alphabet knowledge. In this article, they outline EAK, which is a method of practical instruction. EAK emphasizes recognizing the letter in the text, producing the letter form, and identifying the letter's name and sound. This is accomplished through flexible, distributed cycles of review depending on the elements that influence the acquisition of alphabet knowledge (Jones, 2013).

These studies have proven alphabet knowledge and sound in preschool help students' knowledge towards literacy in the future. Students also rely on parents and other adults to assist in reading stories and pointing out letters and sounds along with communication. This literacy development proves students are capable of learning a number of the day as well as letters and sounds.

### **Delays and Disabilities in the Head Start Program**



In the study by Heilmann (2018), early in a person's life, having a solid understanding of the alphabet is a potent predictor of reading ability and academic success in later years. This is also agreed upon by Jones (2013) and Piasta (2013). After researching the alphabet knowledge of 172 children who were participating in their first year of Head Start, they found the majority of the children were only able to name a handful of the alphabet's letters at the beginning of the school year. In the spring, approximately one-third of the children who had a limited understanding of the alphabet in the fall had made substantial progress and displayed mastery of 10 or more letters. The youngsters who started the school year knowing fewer than 10 letters had a better chance of improving their alphabet knowledge if they had a larger receptive vocabulary. (Heilmann, 2018). These results were compared to Jones (2013) and Piasta (2013).

In addition, the majority of children who came to Head Start knowing fewer than 10 letters were able to recognize the letters in their first names as well as the letters A, B, or O. The implications for the management of children at risk for experiencing scholastic issues in terms of their emergent reading abilities are examined (Heilmann, 2018).

Early alphabet knowledge is a strong indicator of future reading and academic success according to the study by Heilmann (2018), the majority of the 172 children enrolling in Head Start for the first time could identify less than 10 letters at the beginning of the academic year, as determined by monitoring their alphabet knowledge. In the spring, approximately one-third of the children with low alphabet knowledge in the fall displayed mastery of 10 or more letters (Heilmann, 2018).

For children who began the school year knowing fewer than 10 letters, receptive vocabulary was the most accurate predictor of alphabetic knowledge growth. In addition, the majority of children who joined Head Start with less than 10 letters understood the letters in their first names and A, B, or O. The implications of managing emergent reading skills in children at risk for academic issues are highlighted (Heilmann, 2018).

These studies show even in head start programs the learning of letters and sounds is positive. Students can learn the letters and sounds at the same age peers. Some students in head start programming may not be at benchmark, but the letters in their name are being learned which means the other letters will come with time.

### **Mathematics in Preschool**

As said by the study by Clements (2001), mathematical knowledge is actively constructed by individuals of all ages, but preschoolers are a unique population for whom we must organize education with special attention. Consider two of their distinctive features. Successful teachers interpret what a student is doing and thinking and seek to see the issue from the student's perspective. Based on their interpretations, these educators hypothesize about what notions the youngster may be able to absorb or abstract from his or her experiences. Similarly, when teachers interact with students, they should analyze their actions from the students' perspectives. This need for interpretation and speculation makes teaching young children both difficult and gratifying (Clements, 2001).

An all-encompassing approach to teaching and learning capitalizes on the high level of self-directed motivation in preschoolers. This instruction fosters a perspective of mathematics as a positive, self-motivated, and self-directed problem-solving activity when youngsters are first forming their mathematical beliefs, habits, and sentiments (Clements, 2001).

The first mathematics experiences of children originate from their play and interests. These encounters become mathematical as youngsters express and reflect upon them. Young children express their thoughts not only through speech but also through models, dramatizations, and artwork. From the motor and singsong origins of pat-a-cake stem the geometric patterns of a "fence" constructed from unit blocks (Clements, 2001).

Successful preschool teachers draw on children's everyday activities, combining their cultural backgrounds, languages, and mathematical concepts and techniques. To help children learn pre-mathematical and mathematical concepts and develop positive attitudes toward mathematics and themselves as budding mathematicians, teachers employ a variety of instructional strategies, create meaningful child-related contexts, and provide active participation opportunities (Clements, 2001).

The National Council of Teachers of Mathematics Principles and Standards for School Mathematics outline the mathematical themes must be taught. However, we must keep in mind how we teach mathematics is as important as the topics we cover. The most effective mathematics for a preschooler is typically not learned during a seated group class, but rather through the teacher's facilitation of the child's self-directed, intrinsically driven activities (Clements, 2001).

Preschoolers should and can engage in mathematical reasoning. All young children possess rudimentary math skills and are capable of learning more. Teachers should build upon and extend the mathematics that emerges from children's daily activities, interests, and inquiries. They should make an effort to understand children's perspectives and use their interpretations to organize interactions with children and the curriculum. This strategy ensures the mathematical knowledge taught to young children is meaningful. The development of pre-mathematical and explicit mathematical knowledge in preschoolers is facilitated by the combination of an environment conducive to mathematical exploration, appropriate observations and interventions, and specialized mathematical activities (Clements, 2001).

This study by Clements (2007), assessed the efficacy of a mathematics program for preschoolers based on a complete model of building research-based software and print curricula. Building Blocks is a curriculum development initiative supported by the National Science Foundation that focuses on generating research-based, technology-enhanced mathematics materials for pre-K through grade 2.

In this article, they present the underlying principles, creation, and initial summative evaluation of the first set of materials utilized in classrooms with at-risk students. The experimental and comparison classrooms featured state-funded and Head Start pre-kindergarten programs. The two primary types of public preschool programs serve low-income families. The experimental group's score grew much more than the comparison group's score. The experimental group's accomplishment increases approached the desired 2-sigma effect of individual tutoring. This study contributes to the studies demonstrating targeted early mathematical interventions

assist young children to acquire a foundation of informal mathematics knowledge. Particularly for children at risk of school failure in the future (Clements, 2007).

According to McGuire (2012), teachers in kindergarten through fifth grade (K-5) have utilized ten-frames as an instructional tool to support students' mathematical skill development. Despite its obvious potential as an instructional scaffold in the early elementary grades, the use of a similar five-frame has been limited. We know very little about the developmental and pedagogical implications of using five frames and related instructional manipulatives in early childhood mathematics classrooms due to scant evidence of teacher use and a lack of systematic research. In this paper, they provide an overview of five frames and demonstrate how, when used in conjunction with concrete manipulatives, five frames can support the development of Gelman and Gallistel's (1978) three basic counting principles: the stable-order principle, one-to-one correspondence, and cardinality in pre-kindergarten (pre-K) children. This study is what this research study is trying to prove. In conclusion, they discuss the developmental and instructional implications of using five-frames and provide a set of teaching tips designed to help pre-K teachers maximize the potential benefits of integrating five-frames into their curriculum (McGuire, 2012).

This study by Pelatti (2016), says the importance of classroom quality. Few recent research studies have examined the process and structural quality of publicly funded early childhood education (ECE) and inclusive ECE classrooms. By comparing two conceptions of quality in classrooms serving children from low-income households and those with disabilities, this study makes an important contribution to the literature.

The objects were: To characterize and determine differences in process and structural quality in publicly funded ECE and inclusive ECE classrooms, and to examine whether and to what extent process quality varied when controlling for structural quality and income/race variables in the classroom (Pelatti, 2016).

Included in the present study were 164 classrooms (85 ECE, 79 inclusive) participated in two large-scale intervention studies examining a book-reading program. Process and structural quality were quantified using the Classroom Assessment Scoring System and three detailed questionnaires (Pelatti, 2016).

The results revealed quantitative differences in process quality between the two settings. Specifically, in the emotional support dimension of negative climate and all dimensions of instructional support. In addition, teacher education was a significant predictor of process quality, and publicly funded ECE classrooms scored more than two points higher on the instructional support domain of the CLASS after controlling for other structural quality measures, income, and race. The conclusions of their findings for best practice guidelines and policies, particularly for classroom environments serving children with disabilities, are discussed (Pelatti, 2016).

In the study by Purpura (2013), validating the structure of informal numeracy skills is essential for comprehending the developmental trajectories of mathematics skills in young children. However, little research has been devoted to constructing evaluations of the Numbering, Relations, and Arithmetic Operations domains. The purpose of this study was to address this knowledge gap by investigating the structure of these three numeracy skill domains and their interrelationships. The study included 393 children (51.7 percent girls, 55.7 percent White, 33.8 percent African American, and

10.5 percent other). This factor structure was the same for both younger and older preschool children (Purpura, 2013).

In both typically and atypically developing children, previous research has demonstrated that approximate number system (ANS) skills predict formal mathematical knowledge later in life from the study by Van Herwegen (2017) this study examined whether playing specially designed training games target the ANS system using only non-symbolic stimuli would improve the ANS abilities of preschool children. 38 preschoolers were randomly assigned to either the training group or the control group. 20 preschoolers (9 girls) in the training group played daily games for 10 minutes that included guessing and comparing numbers. While 18 preschoolers (6 girls) in the control group read interactive picture books. Before and after the training program, the ANS skills of children were evaluated using a computerized task (Purpura, 2013).

An analysis of covariance with post-training ANS scores as the dependent variable and pre-training ANS scores as the covariate revealed, compared to children in the control group, children in the training group had greater ANS abilities after the training ( $p = .012$ ,  $p_2 = .171$ ). This study provides evidence preschoolers' ANS abilities can be enhanced through a daily training program that specifically targets the ANS. These findings provide support for the development of additional training programs for preschoolers who demonstrate mathematical difficulties early in life (Purpura, 2013). This study coordinates with what Clements (2007), Pelatti (2016), and McGuire (2012), have studied.

These studies show preschool students have self-motivation to learn the essentials of math. Math in preschool is the foundation for future success in math in

higher grades. Students' abilities should be learned through experimentation and play. It is essential for future learning and development.

### **Play Based Math**

According to Burton (2010), daily data is an activity in which the teacher records data on a class graph or chart using numbers derived from the lives of the students (for example, graphing the number of pets in a household). According to the National Council of Teachers of Mathematics (NCTM) standards for children in prekindergarten through twelfth grade, children should "understand numbers, ways of representing numbers, number relationships, and number systems". Conclusion Daily Data, Number of the Day, peer problem solving, math games, and dynamic small group instruction are five strategies for meeting the diverse needs of primary school students (Burton, 2010).

The study by Gable (2021), examines the effectiveness of a physically active number-learning game for preschoolers. The intervention adapts Ramani and Siegler's success. The Great Race by changing the mode of play from seated to jumping on a large game mat with two feet. This study and the one by Burton (2010), both conclude movement in lessons is important for student learning.

In the fall of the first year of a 2-year Title I preschool program, 75 children (mean age: 46 months) were assessed on enumeration, verbal counting, cardinal principle knowledge (CPK), numeral recognition, and magnitude comparisons. Children with a strong conceptual understanding of the cardinality principle were excluded from the intervention (n = 11). Random assignment was used to assign 64 children to the



jumping game, the original seated game, or a control group with no intervention (Gable, 2021).

The intervention consisted of four 15 to 20-minute sessions with an experimenter over the course of three weeks, followed by post-intervention evaluations one week later. All children completed an end-of-year evaluation five months after the post-intervention evaluation. 51 of the 64 intervention group children had complete data for all three-time points. In repetitive procedures, the effectiveness of the intervention on children's number knowledge and skills was evaluated using chi-square tests. Models were tested for the main effects of time and group and the interaction of time\*group (Gable, 2021).

Although all measures of numeracy improved significantly over time. No differences between groups emerged over time. In the context of aligning children's number skills and knowledge with teacher practices and recent early numeracy interventions that target counting and set labeling, the absence of intervention effects is discussed (Gable, 2021).

Especially in kindergarten, studying mathematics does not have to be incompatible with playing. As the two do not have to be mutually exclusive activities according to Ramani (2015), Gable (2021), and Burton (2010), Young children can learn and develop foundational math skills are aligned with Common Core standards for mathematics through activities that are age-appropriate, fun, and engaging. These skills can be learned through play and games, which can give young children opportunities to learn and develop these skills.

In the study by Durman (2020), researchers have examined the impact of play-based arithmetic activities on the mathematical skills, language, and cognitive development of preschoolers. However, too little research was undertaken to establish the influence of play-based math activities on preschoolers' development in many domains.

This study aims to examine the impact of play-based math activities on the personal-social, fine motor, language, and gross motor development of 48- to 60-month-old children. This study adopted a quasi-experimental, pretest/posttest design with control and experimental groups. This study's research group consists of 45 youngsters, with 22 (ten girls and twelve boys) in the experimental group and 23 (ten girls and thirteen boys) in the control group (Durman, 2020).

The Denver II Developmental Screening Test was utilized to collect data. As a result, it was established there was a statistically significant difference between the subscales and total scores on the pretest and posttest for the personal-social, fine motor, and language domains in the experimental group, but not for the gross motor subscale. In addition, there was no statistically significant difference between the pre- and post-test scores of the control group's personal-social, fine motor, language, and gross motor subscales, or their total scores (Durman, 2020).

Children's personal-social, fine motor, language, and gross motor development are positively impacted by play-based mathematics exercises. Planned future research can study the developmental benefits of play-based mathematics education mixed with other activities where children can have fun and be physically active Ramani (2015); Gable (2021); Burton (2010); (Durman, 2020).

Preschool-aged children benefited from a six-week classroom intervention meant to boost their math skills and engagement in the study by Arnold (2002). Teachers in experimental classes incorporated math-related activities like circle time, transitions, mealtime, and small-group activities into their daily routine. Classrooms in the control group engaged in their normal activities (Durman, 2020).

Upon completion of the program, experimental children scored significantly higher than control children on a standardized math test and enjoyed math activities more than control children. As measured by both teacher and self-report. Teachers rated the curriculum as highly satisfactory and indicated an increase in their enthusiasm and proficiency in executing arithmetic exercises in the classroom. Boys accounted for the majority of the intervention's impacts, while girls demonstrated a substantially smaller program response (Durman, 2020).

In the study by Hardy (2021), mathematical proficiency in preschool is crucial because it predicts future academic accomplishment. There are also differences between toddlers with impairments and their typically developing peers in their early numeracy skills. We employed an experimental single-case research design with numerous probes across skills to examine the efficacy of systematic modeling with mathematical language. A prompting technique in enhancing the early mathematics skills of two preschoolers with disabilities or delays were also used.

One person was found to have a functional connection. Inconsistent results may result from the following: (a) difficulties in assessing early math skills, which may have influenced the identification of appropriate target skills; and (b) the involvement of multiple developmental domains in performing math skills, which may have influenced

the demonstration of target behaviors in the participant with significant fine motor and language delays (Hardy, 2021).

This article by Lonigan (2015), presents the results of cluster-randomized research of an integrated reading and mathematics-focused preschool curriculum. Comparing versions with and without an explicit socioemotional lesson component to a business-as-usual condition. Participants were 110 classroom teachers from randomly assigned classrooms and about eight pupils from each classroom ( $N = 760$ ), whose average age at the start of the school year was 4.48 ( $SD = 0.44$ ) years. There were beneficial effects of both versions of the curriculum on language, phonological awareness, mathematics, and socioemotional results. Specific socioemotional training did not affect academic or socioemotional outcomes. Results are discussed about early childhood theory, policy, and school readiness objectives (Lonigan, 2015).

These studies have proven play-based math is motivating to students. It teaches them and keeps them busy at the same time. Not only did it improve their math scores but it improved personal-social, fine motor, language, and gross motor subscales as well. They have also found students overall enjoy math more when there is movement involved.

## **Summary**

All of the resources have given a great amount of information on multiple different facets of learning. Knowledge of preschool students and how they learn is the biggest hurdle. Making lessons clean, sharp and to the point makes for an easy and effective lesson that keeps students engaged.

After reading these resources, the conclusion is there is no information about the number of daily lessons and implementation. This is important to know moving forward. Using the information from enhanced alphabet knowledge as a tool to make the number of the day lessons appropriate for preschool learning is critical for student achievement. Through this action research, the researcher will be able to provide a conclusion about the effects of the number of day on the students in the classroom.

## **Methodology**

### **Research Questions**

Does teaching number of the day affect scores in number to quantity in teaching preschool students about numbers and their functions?

Does teaching the number of the day affect scores in counting to produce an amount in teaching preschool students about numbers and their functions?

### **Variables**

The variable will be investigated in this study is if the number of the day curriculum being added to the preschool day is beneficial to students. This was completed by taking data from students last year that completed the number of the daily lessons and data from students that were not taught the number of the daily lessons.

## Setting

The assessments took place in a preschool classroom at Northeast Elementary in Goose Lake, Iowa. The Northeast Community School District consists of five tiny municipalities and comprises 178 square miles of land. Charlotte, Goose Lake, Andover, Bryant, and Elvira are included. In Goose Lake, Iowa, the School District has a single attendance center where the elementary and high schools are located on the same campus. The District borders Clinton, Iowa on the north and east and contains approximately 3,000 rural residents. Clinton is an industrial community with a population of around 20,000. There are around 800 pupils enrolled in the School District, including open enrollments. The vast majority of pupils come from blue-collar and agricultural families. About 30 percent of the district's children participate in the free and reduced lunch program. In the previous seven years, the District's enrollment has decreased somewhat, indicating stability. Not only are student accomplishment levels among the highest in Clinton County, but they also rank highly throughout the Mississippi Area Education Agency (AEA 9). The Northeast Community School District aims to prepare students to become productive and responsible global citizens by offering quality education in a supportive environment. Geographically, the Northeast neighborhood School district is 45 miles north of the Quad Cities and borders the Mississippi River (Rock Island, Moline, Illinois, Bettendorf, and Davenport, Iowa). The Iowa City's University of Iowa is approximately 90 miles to the west.

## **Participants**

In the classroom this past 2021-2022 school year fifteen students were studied. There were ten boys and five girls. At the beginning of the year, there was one student on an IEP for academics. By the end of the year, there were two students on an IEP for academics. In the classroom, during the school year of 2018-2019, 20 students were studied. This was a full year before the number of the day was implemented. There were 12 boys and 8 girls. At the beginning of the year, there was one IEP student and none that qualified for an IEP at the end of the school year.

## **Data Collection**

As a preschool educator, there were fifteen students in the class. Each of them would have the opportunity to go to the back of the room where there were fewer distractions, one at a time. There would be displayed the numbers 0 through 20 in a random order to the students. It was then requested the students identify the number before handing the number of counters. Each student would always use the same bears to count out. The numbers would be chosen at random, and the students would do 0-5 first, followed by 6-10 if they were able. If they could complete 6-10, they would move on to 11-15, then 16-20. If they were unable to complete the current section, they were prevented from proceeding. The numbers were collected from 0-10 for all students who mastered them before collecting the numbers 11-20 for those who could do so separately.

On a completely separate day, the counting assessment would be conducted. This was a line of bears numbered 1 through 5. If they could count one bear at a time to five, they would move on to counting bears 1-10. If the student mastered 1-10, they

would move on to 1-15 and then 1-20. If they did not complete the current section, they could not proceed. If they skipped bears, they were asked whether they counted each bear individually and give them a second chance.

Once all of the data was collected. It was put into an excel spreadsheet where it was documented with the other preschool class data. This was used at our PLC meetings to discuss results, how it could better meet the needs of the students, and what was going well. The learning targets were used to decide where the student results could be measured. It was documented according to the Iowa Early Learning Standards and Gold Teaching Strategies.

### **Data Analysis**

The location of the study was a rural elementary school. Before the number of the daily lessons, 20 students were assessed at the beginning and end of the year. There were 7 proficient and 13 not proficient at the beginning of the year. At the end of the year, there were 9 proficient and 11 not proficient. The results were then compared to a class of 15 that did have the number of daily lessons. At the beginning of the year, these students had 1 proficient and 14 not proficient. At the end of the year, there were 11 proficient and 4 not proficient.

The tool that was used to find the results were the Chi-Square Test of Association. The comparison between two groups to find which group was more successful. This gave us the information necessary to decide if the number of the day was successful in teaching. The first group was the group that did not receive the number of daily lessons. The Chi-Square Test of Association showed that the first group that did not receive the lessons scored  $\chi^2 (1, N = 20) = .518605, p < .05$ , while the

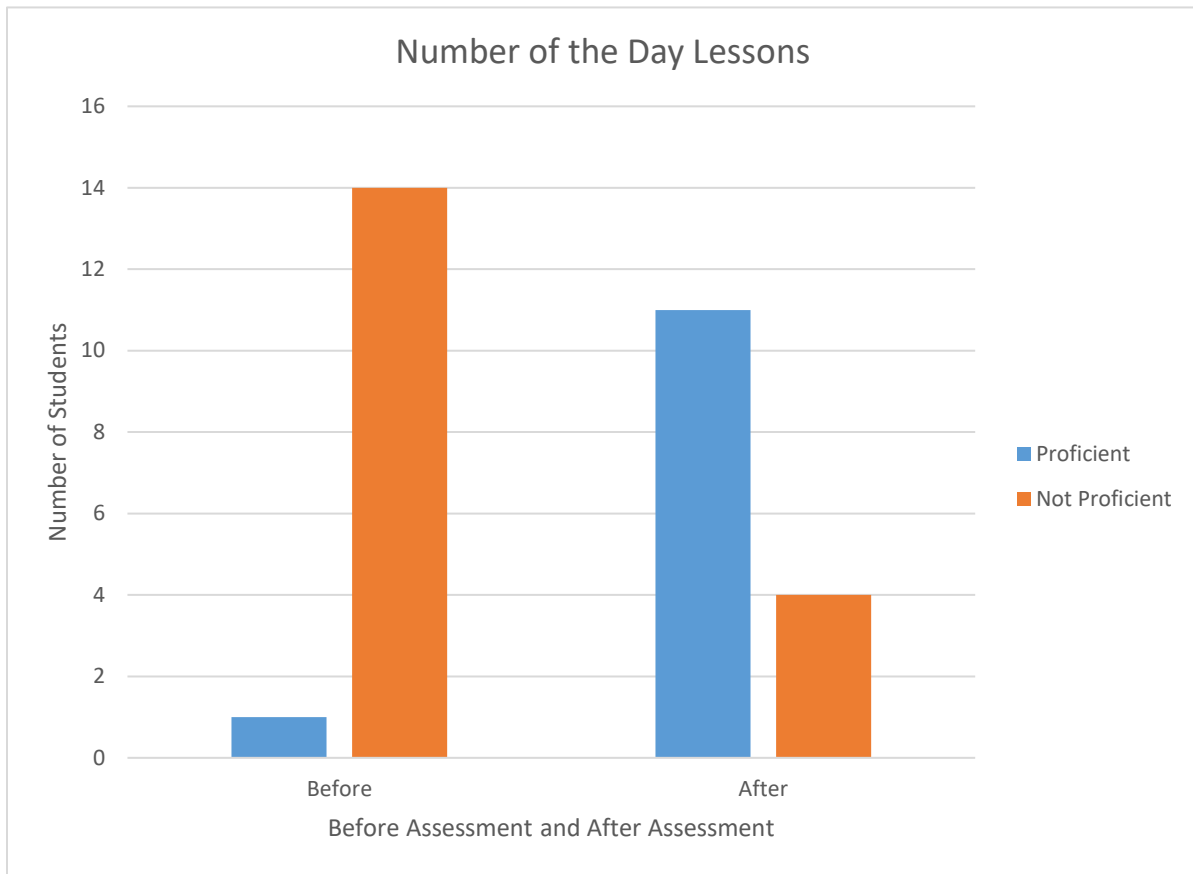


second group of students that did receive the lessons scored  $X^2 (1, N=15) = .000194, p < .05$ . Results from the Chi showed a significant difference in scores. Students were more likely to show improvement with the number of the day lessons than without the lessons.

The outcome of this action research was proven the number of daily lessons was effective in daily lessons. The students learned about the number and its function throughout the school year at a significantly higher pace than without the lessons. Teaching about the five and ten frames, tally marks, drawing pictures, writing the number word, using a rekenrek, and clapping out the number serve as a useful tool for students to understand numbers.

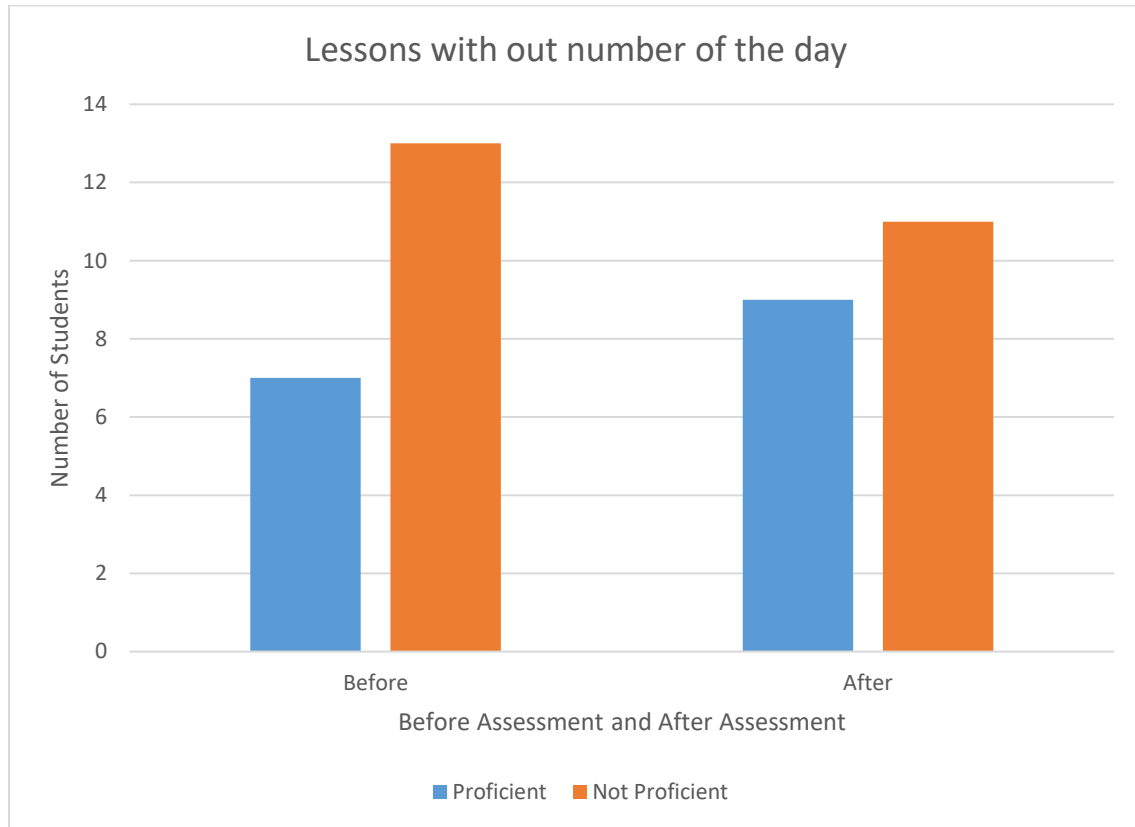
### Chart 1

*Students who did receive the number of the day lessons*



**Chart 2**

*Students who did not receive the number of the day lessons*



## **Discussion**

The action research study of the number of the day activity has proven successful in teaching students about each number and its functions. The class that did not have the instruction had many students unable to reach the benchmark and were not proficient in the areas of counting one-to-one and producing an amount given. There were eleven students out of twenty were still not proficient at the end of the year. The class that did have the number of the day lessons improved greatly from the beginning of the year to the end. There were only four students out of fifteen were not proficient at the end of the year.

## **Impact of Teaching and Learning**

The number of the day lessons proved to be successful and will make an impact on the teaching of numbers as well as the learning is available for preschool students. The lessons are effective and short, making the learning easy for students with their short attention span. The number of the day covers learning the number and all of its functions in one short lesson a day. Over time the students learn the numbers 0-20 and their functions with ease.

## **Literature Review**

The literature review supports the data that was found at the beginning of the year and end of the year assessments. Students gained knowledge of numbers and functions with the number of the day lessons.

There was no information on the number of the day. Every article from the literature review supports play-based math and shorter lessons help students gain

knowledge of numbers and their functions. Learning numbers and their functions is important for growth moving on to kindergarten as a student.

Learning about alphabet knowledge and the sounds in the enhanced alphabet knowledge lessons and its success has helped build the number of the day lessons. The articles prove the findings point to the benefits of teaching children letter names and sounds together as a means of fostering letter sound acquisition in young children.

### **Limitations of the Study**

The limitations of the study was there was no real data from any other sources from the number of the day lessons because those lessons had just been created. The data was taken from enhanced alphabet knowledge results and other data from play-based learning. Learning the data from the research in this study proves the lessons are effective, now it is time to implement them!

Another limitation would be the class size. The two classes that were analyzed were of different sizes. It would have been better if there were more classes to analyze in each category. This would have given an even better picture of the effectiveness of the number of the day lessons.

Another limitation was covid. There was a whole year of data that could not be used in 2019 because the school had shut down in March and they never returned. This data could have been used as a number of the day data if we could have gotten an end-of-the-year result, but the absence of classes would have skewed the data.

### **Future Research**

Future research would be a need to find out if the results of the number of the day continue to rise. There was only one year of good data. If there were more time or another year of classes with the number of the day, we would have more data to prove it worked and there was progress.

There would also be future research in technology and making the lessons interactive. The smart board use and YouTube videos are easy to access and the kids enjoy them. This would help increase the number identification and their function as well.

The researcher plans to continue with the number of the day lessons. The play-based and movement lessons prove to be effective. Ultimately the goal in teaching is to meet the standards and benchmarks in mathematics. These lessons serve the needs of the students in preschool with numbers and functions.

### **Conclusion**

This study provides information about lessons in the number of the day to increase the number of identification and functions in preschool students during their preschool year. The literature review shows play-based math and movement and manipulatives help increase the student data. It also shows the enhanced alphabet knowledge lessons were created for letters and sounds were beneficial for preschool students and information is what the researcher used to form the number of the day lessons.

The researcher took data from two different classes one before the number of the day lessons had twenty students, and a class after the implementation of the number of the day lessons had fifteen students. The assessment was done at the beginning of the year and the end of the year. The data showed the number of the day lessons was beneficial to the students increasing their one-to-one counting and producing abilities.

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