



## Research Article

# GETTING CHILDREN READY FOR SCHOOL: FAMILIARIZATION WITH NUMERICAL SYMBOLS – AN IMPORTANT CONTENT IN MATHEMATICS EDUCATION

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## ABSTRACT

*The article discussed the issue of psychological readiness for older preschoolers (5-6 years old). Familiarization with numerical symbols is essential to help children become more confident and eager to learn more and develop mathematical capacity in primary education. The results collected from studies in Vietnam have shown that using games integrated mathematical content (the practice of recognizing numerical symbols) helped children quickly understand the lesson content to form numerical symbols, which could meet the mainstream activities by the age of older preschoolers. Thereby, this demonstrated the close relationship between Mathematics and Psychology in preparing school readiness psychology for preschoolers. In other words, from the preparation of psychological readiness for children to attend primary schools, it is necessary to consider the achievements of math education to conduct effective math education.*

**Keywords:** mathematics; numerical symbols; preschool education; psychology; school readiness

## 1. Introduction

The intellectual preparation in general and the numeric symbol familiarization for older preschoolers (5-6 years old) to enter grade 1 was an important issue that was particularly cared for by educators and parents (Ha, 1990). However, in practice, the concept of familiarizing school-ready children with numerical symbols of many preschool teachers was still wrong as some teachers teach grade 1 curriculum beforehand with a hope of helping first graders learn addition and subtraction more easily (Do, 2005). Teachers normally

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thought that teaching children to count objects and recognize numbers was enough, and the rest was the work of primary teachers. These misconceptions had hindered the development of a child's thinking ability when perceiving the concept of numbers in school.

Notari-Syverson and Sadler (2008) said that the familiarization with numerical symbols scientifically and methodically for older preschoolers would create confidence and prepare psychological readiness to enter grade 1 for children, helping them overcome initial obstacles in learning Math.

The reality of early childhood education in Vietnam showed that most preschool teachers had just helped children be aware of symbols attached to objects or form symbols and generalize symbols (Dinh, 2010). Preparing children for school should be based on psychological science in which the familiarization with math symbols is a requirement. Children's familiarization with math symbols should be based on the psychological basis of children's interests, emotions, and feelings (Huynh, 2012).

Therefore, the study of the familiarization with numerical symbols as a process in support steps, psychological preparation for first graders would help preschool educators and parents realize this a meaningful content in Mathematics, placed in close relation with the field of Psychology. The results were expected to help educators, psychologists, and mathematics education research experts have a scientific basis to familiarize children with numerical symbols to enter grade 1 as part of their psychological preparation for school. This was also an essential foundation to consider math education for preschoolers as well.

## **2. Getting children ready for school by familiarizing with numerical symbols**

### **2.1. Prepare the readiness for preschoolers**

The time when children turn six years old is an important time for them. At this age, children enter a turning point with the change of mainstream activities. *Play activities are inherently the mainstream activities* throughout the preschool age, but by the end of this age no longer maintain their complete form, and elements of learning activity begin to arise (Dinh & Phan, 2008).

At the end of the preschool age, children have necessary prerequisites for schooling in terms of *psychophysiology, cognition, linguistic intelligence, and mentality* so that children can adapt to initial learning conditions in grade 1. The preparation for children to enter grade 1 is to prepare premises and elements of learning activities to best adapt to learning in class. According to Nguyen et al. (1998):

- **Physical preparation**

Developing fine motor skills, the dexterity of the hands, the senses, putting on shoes, attaching buttons, folding clothes after dressing. These habits are beneficial for children to be independent and to be not dependent or reliant on others.

- ***Language preparation***

For 5-year-old children to be good at Math and Vietnamese in grade 1, it is necessary to organize listening and speaking activities such as:

- Developing thinking through telling stories, reading poems, doing math fast (addition or subtraction less than 10).
- Showing children pictures, retelling stories, numbers according to their memory and imagination, conversation, asking questions about content, reasoning, and judgment through riddles, games, and through the children's answers.
- Teaching children to write their names, write numbers naturally without constraint, taking attendance by name tags, numbers, helping the children to recognize their names and their ordinal number on individual exercises. Let children get used to letters and numbers through several games:
  - + Finding words/numbers matching pictures.
  - + Finding letters/numbers learned through poems and songs.
  - + Practicing pronunciation through poetry, children's songs, stories.
  - + Games to copy letters/numbers, role-playing

- ***Social – emotions skills preparation***

- Through pictures and poems: Ask questions that stimulate children to express their feelings and thoughts to others through role-playing and play-acting. Alternatively, express feelings about numerical symbols - helping children associate numbers with images of animals, specific stories (Example: number 1 resembles a pillar, number 2 resembles a duck)
- Help children choose and participate in play activities to develop their confidence, self-reliance, and creativity and develop their thinking. Thereby stimulating children's expectations, eagerness to go to grade 1.

- ***Intellectual development preparation***

Take every opportunity to stimulate children's interest in mental activity: Children know how to solve several daily situations, have a basic understanding of themselves, family, society, temporal, spatial symbols, some basic math skills. For example, through lessons: Storytelling, reading poetry, familiarizing with letters/numbers, familiarizing with the surrounding environment, math, play activities. Children need to achieve proposed goals. That is the luggage and the essential knowledge for children to enter grade 1 confidently and steadily.

Through learning activities, play activities, labor activities, each plays a vital role in preparing the children's school readiness. Therefore, the children need training in intellectual manipulation.

- ***Learning-skill preparing***

- In addition to physical, intellectual, linguistic, and social-emotional preparation, we need to prepare some additional skills necessary for children's learning activities. Facilitate training of some basic skills of learning activities: Arrange tables and chairs, group activities, writing style, writing posture.

- Familiarize themselves with some primary education learning materials and primary education environment.

- Visit primary schools for children to understand better the new learning environment and activities and entertainment at the primary school. Use child-centered, self-service teaching methods.

- Propagandize parents to know well the preparation to develop the virtue, wisdom, physicality, and beauty of children before entering grade 1.

From the above analysis, to study mathematics well in primary school, the psychological preparation cannot be separated from familiarizing children with math symbols. The familiarization with this numerical symbol needs to be done through all aspects such as language, intelligence, emotions, skills for children to identify math symbols best.

## ***2.2. Numerical symbol familiarization - Important content in grade 1's Math***

Numerical symbols are psychological images reflecting the relation of number and order of elements in a set of natural things, reflecting operations that abstract quantitative attributes from object properties and those that establish quantitative relationships between them. Numerical symbols are a combination of many component symbols: the symbol for the number of elements in a set of objects, the symbol for the equality or inequality of the number of objects (more - less), the symbol for the whole - parts, and the symbols for the hierarchical relationship of number sets having different numbers of objects (Nguyen, 1995).

Familiarizing children with numerical symbols is to form in children composition symbols of numbers without which children cannot learn math effectively in grade 1.

The psychological preparation in general, the numerical symbol familiarization in particular for older preschool children (5-6 years old) into grade 1, is an important issue concerned by preschool teachers, parents, and managers. The contents that preschool teachers need to familiarize children with numerical symbols before entering grade 1 can be summarized as follows:

- Intentional cognitive development for children
- Thinking development for children

- Intentional memory development for children
- Teaching children to count numbers
- Teaching children to read numbers
- Teaching children to count up
- Teaching children to understand them more, less, equal relationship on things
- Teaching children to count down
- Teaching children to separate objects
- Teaching children to separate symbols
- Teaching children to separate numbers
- Teaching children to add up objects
- Teaching children to add up symbols
- Teaching children to add up numbers
- Teaching children to understand order relationships on objects
- Teaching children to separate and add up numbers on diagrams
- Teaching children quantity and volume preservation
- Developing basic language capital
- Teaching children additions within 10
- Teaching children subtractions within 10.

According to Dinh (2011), most teachers teaching preschoolers have misconceptions about the contents of familiarizing children with numerical symbols before entering grade 1. To well familiarize older preschoolers with numerical symbols before entering grade 1, preschool teachers must form rich mental symbols in the children's minds as a basis for them to learn Maths in grade 1 such as symbols of quantity, symbols of equality or inequality (more - less, bigger - smaller), symbols of the wholeness – partialness, symbols of the order relation between numbers. These symbols are entirely separate from objects, stable and generalized in the children's mind. If preschool teachers do not meet the above requirements when designing numerical symbols for older preschoolers, they will not have prosperous, stable, and generalized symbols in their minds, which is the basis for learning mathematics in grade 1.

The logic of forming numerical symbols consists of five steps: setting the basis for action; acting with natural or materialized objects; acting with loud words; acting with whispers; Acting with inside words. These steps can be generalized into three stages for forming numerical symbols in older preschoolers: the stage for children to manipulate things, modeling numerical symbols outside (train children to use symbols), and forming symbols in the children's minds. When the symbols have been formed in the children's minds, preschool teachers must actively facilitate children to use numerical symbols through games to help children develop thinking skills, help numerical symbols to be strengthened,

embedded, generalized in the children's minds as a basis for the children to acquire Mathematics in Grade One (Nguyen, 1986).

It could be affirmed that familiarization with numerical symbols is important for preparing children for school. This was because of the following:

- Familiarizing children with numerical symbols is important in familiarizing children with math symbols besides familiarizing children with geometric, spatial, and temporal symbols.

- Familiarizing with numerical symbols prepares children to be confident because they begin to interact with the numerical world when going to school. Moreover, the mathematical content in the new general education program consists of 105 lessons, including the following primary objectives: children can perform thinking operations at a superficial level; raise and answer questions when arguing or solving simple problems; special arithmetic operations and formulas to present, express (speak or write) content, ideas, and problem-solving methods; use mathematical language combined with a common language, physical movements to express mathematical contents in simple situations; use simple math learning tools and means to perform simple math learning tasks. Have basic and essential mathematical knowledge and skills about: Numbers and calculations; Geometry and Measurement; Statistics, and Probability.

- Familiarizing children with numerical symbols is an essential foundation for children entering grade 1 to systematically understand the most necessary mathematical concepts, principles, rules as a basis for learning at the following learning levels or to use in everyday life. In addition, the familiarization with numerical symbols also helps create confidence, readiness to go to school and acquire new knowledge from Mathematics in Grade 1. Children will feel that changing the content of learning Math from preschool to primary school is not too complicated because they are familiar with symbols, pictures of numbers, and operations. From there, it stimulates children to research, explore, and learn more in math. Children can reap more success when learning Math in primary school. The familiarization with numerical symbols for children also helps them develop visual thinking, abstract thinking, and perception of the world around them, think better, imagine better, and further develop intellectual capacity.

### ***2.3. Development of school readiness for children: Numerical symbol familiarization – Important content in Math***

Summarizing previous studies on the development of school readiness for children showed that most preschool teachers had not been fully aware of the content to be prepared for children to enter school. According to preschool teachers, to familiarize children with numerical symbols, children needed to manipulate many on objects and then move to practice simple additions and subtractions to help children be active from the first days of learning Math in grade 1. This was an essential basis that experts in mathematics education

in general education curriculum and grade 1 curriculum need to know to ensure the compatibility of education and adequately assess children's capacity to educate and develop accordingly. The fact also showed that considering the achievements of math symbol familiarization in preschool in general and older preschool, in particular, has not been fully utilized when teaching Math to first graders, which was at risk of conflict with capacity education and development requirements for pupils in the new general education curriculum.

Authors Dinh and Phan (2008) listed causes of preschool teachers' failure to be aware of this issue: (1) Preschool teachers teaching older preschoolers have not fully understood familiarizing children with numerical symbols before entering grade 1; (2) Preschool teachers have not fully understood the logic of forming numerical symbols in children's minds; (3) Early childhood education managers have not paid much attention and given specific guidance to preschools on the content of familiarizing older preschoolers with numerical symbols before learning mathematics in grade 1; (4) Parents want their children to know how to read, write and do the math before entering grade 1. It was these pressures that affected the awareness of preschool teachers in preparing children for primary school.

On the other hand, for an older preschooler, for a child to gain confidence, comfort, curiosity, love to explore a new school environment, preschool teachers must educate him/her to form some original symbols of numbers and letters, and class rules. Within the scope of the study, we focus on children's numerical symbols as a foundation to prepare children for basic knowledge to be good at Math in primary school. Based on the concept of numerical symbols, it can be noticed that through games, children can knead numbers, especially kneading addition and subtraction operations under 10 (recognizing and expressing numbers helping children form arithmetic symbols in their mind). Children can distinguish the direction of numbers (right, left, top, bottom), play the count-down, count-up games. Children play with exciting numbers, computer games. Thus, familiarizing themselves through math games is basic and easy to familiarize preschoolers with numerical symbols to develop their school readiness. This is also the experience that math educators and early childhood education experts, as well as psychologists who need to ensure, as on the one hand, compliance with the requirements of math education in familiarizing preschoolers with numerical symbols in general and nursery children. On the other hand, it is also necessary to ensure the reception and exploitation of mathematics education achievements for nursery children so that the mathematical education for primary school pupils will meet the educational requirements to develop their capacity in modern education.

#### ***2.4. Content of some games forming number symbols for older preschoolers***

*2.4.1. Concepts, structures, processes, and contents of forming symbols of quantity, numbers, and counting operations for 5-6 years-old children*

Learning games in activities for children to become familiar with math is a game with rules to help children strengthen mathematical symbols. The purpose of the games is to strengthen mathematical symbols and to interest children in mathematics. Because they are learning games with many teaching properties, they are closely associated with math symbols. Adults select the unique property of math games to strengthen mathematical symbols. Math games in preschools aim to develop the process of recognizing mathematical symbols, stimulating children's curiosity about mathematical symbols.

The structure of a learning game consists of three components: Content, Action, Rules.

The process of organizing a learning game is as follows:

- Choose a game;
- Prepare a place and playing facilities;
- Guide children to play;
- Arrange for children to play;
- Review, comment after playing.

The primary contents of forming symbols of quantity, numbers, and counting operations for 5-6 years-old children are as follows:

- Teach children to count, identify groups with quantity and identify numbers 6 to 10.
- Teach children to compare, add, subtract, and create equality in the range of 6 to 10.
- Teach children to divide a group of 6 to 10 into two parts in different ways.

*2.4.2. Some learning games help 5-6 years-old children familiarize themselves with symbols of quantity, numbers, and counting operations*

*a. Game 1: "Find the right house number"*

**Purpose**

- Strengthen symbols of natural numbers in the range of 6-10, symbols of numbers added and removed within the range of 10.
- Train children's ability to observe.

**Preparation**

- The teacher: There are two houses. Each house has a number tag (for example, two houses numbered 6, 7).
- Children: Each child is given one object number card (the number of objects on his/her card is precisely equal to 1 of the 2 number cards of the teacher's houses).

### How to proceed

- *The teacher says the game's name:* The game is called “Finding the right house number.”

- *Instruct how to play:* The teacher lets the children stand in a circle to describe how to play:

“Today, we are going to look for houses with the number of objects on the card that you have on your hands. Before finding the house, you can see how many objects you have in your hands. Now we go in circles and sing “Take a trip”. When I say “it is raining,” you have to find the house with the card showing the right number of objects on the card in your hands.”

- *Disseminate rules:* “If anyone finds a wrong house or is too slow to find, he/she will lose and has to hop around the houses.”

- *Organize the game:*

1st time. The children play.

2nd time. The teacher exchanges number cards at the houses or asks the children to exchange cards and then play.

- *Comment, evaluate:* After each play, the teacher comments. The teacher can comment at each house or comment with the whole group while the children still stand in each house.

The teacher asks the children:

+ What is your house number? (for example, number 6)

+ Why do you come to this house? (Because my card has six objects).

The teacher comments that those who play rightly and wrongly have to hop around the group; others will read the hopscotch poem to stimulate their hopping partners.

*b. Game 2:* “Cars to look for passengers, passengers to look for cars.”

### Purpose

- Strengthen children's ability to practice counting; identify numbers.
- Train children to observe, classify vehicles.

### Preparation

- *The teacher:* Three wear cards affixed with vehicles and numbers on the vehicles (for example, cars 6, 7, 8). On the floor, draw circles, squares, and triangles so that children can stand in a while playing.

- *Children:* The separate cards of cars with numbers 6, 7, 8 correspond to the wear cards.

### How to proceed

- *The teacher says the name of the game:* The game is called “**Cars to look for passengers, passengers to look for cars.**”

- *Instruct how to play:* The teacher lets the children play with a driver wearing a card and stand on the boxes on the floor (one child each). For other children, the teacher hands out separate cards of drawing vehicles.

The teacher plays music or lets children walk and sing and count the number of vehicles on the card. When there is a “Passengers to look for cars” command, whoever has vehicles cards will move to a station with the corresponding vehicle number.

- *Disseminate rules:* When the command is finished, the child who comes to the wrong station must hop to the correct station.

- *Organize the game:* The teacher lets children play two times:

1st time. Play.

2nd time. The teacher lets children exchange cards for developing observation, attention skills, and then play.

- *Comment, evaluate:* After the children come to the station, the teacher will let the children in each station check define who come to the wrong station and must hop to the correct station. Then the teacher goes to the station to ask the children:

+ What is the station number? (for example, Number 7)

+ Why do you come to this station? (Because my card has seven cars). Count how many passengers at each station; Which station has the most passengers; Which station has the most minor passengers?

c. *Game 3:* “Cars to look for passengers, passengers to look for cars.”

Still, in this game, the teacher increases the level of the game.

### Purpose

- Strengthen children's ability to practice counting; identify numbers, add or subtract within 7.

- Train children to observe and classify vehicles.

### Preparation

- The teacher: For square cards, draw one type of vehicle and one or two dots on each card. Circle cards have five or six dots.

- Children: Each child will get a square or circle card. Children who are driving will hold a square card, children who are passengers will hold a circle card.

Note: The number of dots on square cards and circle cards depends on the mathematical symbols to be strengthened, addition or subtraction ranges. In this case, the addition or subtraction range is 7.

### **How to proceed**

- *The teacher says the name of the game:* The game is called “**Cars to look for passengers, passengers to look for cars.**”

- *Instruct how to play:* The teacher issues one random card to each child, letting the child know whether he or she is a driver or a passenger and counting the number of dots on the card (children with square cards are drivers, children with circle cards are passengers).

The teacher lets the children walk while singing. When the “Cars to look for passengers - Passengers to look for cars” command is issued, the children look for each other to make a pair so that the combined number of dots on the driver card and the passenger card is 7.

- *Disseminate rules:* If a pair has several dots on the driver card and the passenger card is not equal to 7, then the pair will have to hop and look for again.

- *Organize the game:*

1st time. Play.

2nd time. The teacher lets the children exchange cards with each other, then proceeds to play.

- *Comment, evaluate:* The teacher lets each pair check the results; if wrong, they have to look for it again. Then the teacher asks the children:

+ How many dots does your car have? (for example, one dot)

+ How many dots does your card have? (for example, six dots)

+ Why do you look for this car? (Because six dots add one dot is seven dots).

d. *Game 4:* “Find a close friend.”

### **Purpose**

Strengthen quantity symbols in the range of 6 to 10.

Train the children to add or subtract to get a new number.

Develop the children's ability to observe, agility, and activeness.

### **Preparation**

- The teacher: Cards numbered from 1 to 10 (half of the groups have numbers from 1 to 5; half of the groups have numbers 6 to 10).

- Children: Each child has one of the number cards from 1 to 10 (half of the groups have numbers from 1 to 5; half of the groups have numbers 6 to 10).

**How to proceed**

- *The teacher says the game's name:* The game is “Find a close friend.”
- *Instruct how to play:* The teacher lets the children stand in a circle, then instructs how to play:

Today we will play the game “*Find a close friend.*” Each of you holds a number card; you look at what the number card is (for example, to strengthen the ability to add or subtract within 8, half of the children will have number cards from 1 to 3; the other half have number cards from 4 to 7). Please read your number aloud. Now, raise your number to me and walk while singing “Find a close friend.” When I say we find a friend with a number so that when you add your number to your friend's number, you will get a new number of 8.

- *Disseminate rules:* If you make the wrong friend or cannot find a friend to make a friend, you will lose and have to hop.

- *Organize the game:*

1st time. Play.

2nd time. The teacher lets the children exchange cards with each other, then continues to play.

- *Comment, evaluate:* The teacher lets each pair check the results; if wrong, they have to look for it again. Then the teacher asks the children:

+ What is your number? (for example, number 1)

+ What is your number? (for example, number 7). + Why do you find the friend? (Because 7 plus 1 is 8).

- e. *Game 5:* “To be a homemaker.”

**Purpose:**

Practice the ability to add, subtract and divide 1 group into two parts in different ways—practice counting and recognizing numbers.

Strengthen the children's understanding of their surroundings.

**Preparation**

- *The teacher:* Prepare one basket of fruits for each child equal to the number to be learned by him/her (for example, number 7).
- *Children:* Each child has one basket of fruits with the number of fruits equal to the number to be learned by him/her (for example, number 7).

**How to proceed**

- *The teacher says the game's name:* The game is “To be a homemaker.”

- *Instruct how to play*: The child's task is to divide the number of fruits in the basket into two parts, with 1 part having the required number, and determine the number of fruits of the remaining part and use corresponding numbers to place them in each part.

- *Disseminate rules*: Children who do not follow the requirements have to hop.

- *Organize the game*:

*1st time*. The teacher lets the child divide the number of fruits in the basket into two parts, with 1 part having the required number and determining the number of fruits of the remaining part, and using corresponding numbers to place them in each part. (For example, divide seven fruits into two parts, with 1 part having two fruits, how many fruits does the other part have? Place corresponding numbers in each part. The teacher lets the child in all ways).

*2nd time*. The teacher lets children in groups with the number of children equal to possible division methods. (For example, seven objects are divided into two parts, there are 3 division methods, the teacher lets the children form a group of 3. Distribute to each group 3 types of fruits with seven fruits each). The teacher asks the children to divide their fruits into two parts so that the division ways are not the same.

- *Comment, evaluate*: After the children finish the request, the teacher observes and comments whether the children are right or wrong.

The teacher presents the division ways and lets the children comment: Can it divide into two equal parts?

Thereby, the teacher shows the children: Some groups can be divided into two equal parts, some cannot be divided into two equal parts.

***\* The meaning of the proposed games with school readiness preparation and numerical symbol familiarization***

Play is a mainstream activity not only because preschoolers spend time on it, but playing games also make them *psychologically change*. It dominated other activities that make them unique in preschool age (Dinh Thi Tu & Phan Trong Ngo, 2008). Play activities are put into education in the form of games. For children, games are a form of independent activity. While playing, preschoolers clearly express their sense of mastering active and independent playing. In-play activities, adults can only suggest and guide. The educational effect of adults in play activities is to turn *educational requirements into the content of play activities* and instruct the children to play so that they can satisfy their interests and achieve educational requirements.

While playing, each child identifies a specific role and performs actions appropriate to the role played but pretend. Children also *take one thing and replace another* and name the substitute, then use the substitute to match its name. *All of the above things had a genuine*

meaning because they reflect a fact in life. That is the new function of consciousness: Symbolization - representation function. For young preschoolers (3-4 years old), the symbolic play activities dominate imaginative play activities.

*In contrast, at medium preschooler age (4-5 years) and older preschooler age (5-6 years old), imaginative play activities dominate other symbolic factors.* This is an important stage in forming symbols and creating a premise for developing logical - abstract thinking in children, especially mathematical symbols. If adults (preschool teachers or parents) instruct children to participate in number and operation-recognition games such as: "Finding the right house number" (game 1) to strengthen natural number symbols in the range of 6-10, symbols of numbers added or subtracted within 10; "Cars to look for passengers, passengers to look for cars" (games 2 and 3) to strengthen children's ability to practice counting and recognizing numbers; "Find a close friend" (game 4) to strengthen quantity symbols in the range of 6 to 10; "To be a homemaker" (game 5) to practice the ability to add and subtract and divide one group into two parts in different ways, practice counting and recognizing numbers; Numerical symbols will gradually be formed in children, children will be more confident when communicating and learning numbers, and from there, the psychology of children when learning math in grade 1 will change in a positive direction. Not only that, the formation of numerical symbols for children through these games also meets the requirements of teaching and developing pupils' capacity according to the spiral circle currently followed by our country's general education program: children familiarize themselves with numerical symbols through games at preschool, up to primary school, children are further trained about formulas, maths, solutions, especially math problems with words (word math problems); if at preschool, children are not familiar with numerical symbols, it will be difficult for them to learn math in grade 1 because they will have to cope with "accumulated" knowledge as well as have difficulty in recognizing numbers, calculations, formulas. In addition, if children have difficulty learning math, they will feel like they are not like other children, begin to feel insecure, and feel hard at learning, resulting in ineffective learning results and narrowing their skill training.

In general, play activities, especially games at school age, really play a leading role. Play is vital in children's development and contributes to social, emotional, physical, and mental development. It is one of the ways children find their impact on the environment and themselves. This positive learning method contains many manipulations and helps children become proficient, confident and develop essential skills, including social skills. Children become curious, and play is a safe way to explore and learn about the environment. Individual and collective play supports brain growth, promotes the development of strength and physical coordination, provides relaxation, encourages planning, supports symbolic processes, facilitates life skill practice, unify body, mind, and spirit, and allows children to have fun. Through games, adults can integrate math content to gradually form numerical

symbols for children, help them become more curious, more interested in math, and psychologically ready to go to school, and help them learn mathematics effectively in Primary school.

### 3. Conclusion

In general, to form numerical symbols for older preschoolers to get ready for going to primary school, children should pay attention to the following: counting and recognizing groups with quantity and identifying numbers within 10. Through game-based teaching, meet both the requirement for child age main activity and train and form initial numerical symbols for children to be more confident and courageous before new, more complex challenges in Math at primary school. This is content related to the specialized familiarization with math symbols and preparation for learning math in grade 1. In addition, developing school readiness for children needs to be placed in a relationship with other subjects such as Vietnamese, life skills, and physical education so that children are psychologically prepared, ready to respond, and more confident when entering Grade one and can be integrated with the familiarization with numerical symbols and math symbols. Studying the development and preparation of school readiness psychology for older preschoolers, we recognize a close relationship between Psychology, particularly Development Psychology and Math Education. The knowledge of Math helps preschool teachers equip basic knowledge about numerical symbols and simple addition and subtraction operations to integrate into the educational content for preschoolers. The knowledge of Psychology helps preschool teachers have an overview understanding of the psychology of preschoolers from the age of 3 to 6 to build the most appropriate content lessons based on child age's developmental characteristics. This is an intimate, inseparable relationship between these two sciences in developing school-readiness psychology for children that early childhood education managers, parents, and preschool teachers need to consider and have specific development and education orientations.

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**CHUẨN BỊ TÂM LÍ CHO TRẺ ĐẾN TRƯỜNG QUA VIỆC LÀM QUEN  
VỚI BIỂU TƯỢNG SỐ – MỘT NỘI DUNG QUAN TRỌNG  
TRONG GIÁO DỤC TOÁN HỌC**

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**TÓM TẮT**

Bài viết đề cập đến vấn đề chuẩn bị tâm lý đến trường cho trẻ mẫu giáo lớn (5-6 tuổi). Việc làm quen với các biểu tượng số là điều cần thiết giúp trẻ tự tin hơn, ham học hơn và phát triển năng lực toán học ở bậc tiểu học. Kết quả thu thập từ các nghiên cứu ở Việt Nam cho thấy việc sử dụng trò chơi tích hợp nội dung toán học (thực hành nhận biết biểu tượng số) đã giúp trẻ hiểu nhanh nội dung bài học để hình thành biểu tượng số, đáp ứng hoạt động chủ đạo ở độ tuổi trẻ mẫu giáo lớn. Qua đó, chứng tỏ mối quan hệ chặt chẽ giữa Toán học và Tâm lý học trong việc chuẩn bị tâm lý sẵn sàng đến trường cho trẻ mẫu giáo. Nói cách khác, từ việc chuẩn bị tâm lý sẵn sàng cho trẻ đi học tiểu học, cần xem xét những kết quả đạt được của giáo dục toán để tiến hành giáo dục toán có hiệu quả.

**Từ khóa:** toán học; kí hiệu số; giáo dục mầm non; tâm lý; sự sẵn sàng đến trường