



Teachers Report: Toddlers Can Learn Math as Well as Preschoolers!

*Keting Chen, M.S, Jennifer Leeper Miller, M.S, Victoria Molfese, Ph.D
University of Nebraska Lincoln*

INTRODUCTION

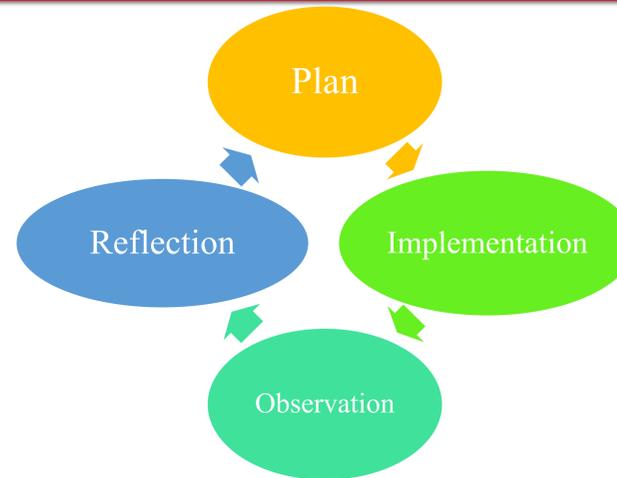
Children’s early math abilities have been found to be strong predictors of their later academic success (Duncan et al. 2007). However, most early math research has focused on preschool aged children. Less information is available on approaches to teaching math concepts to toddlers.

Research Questions:

1. How do toddler teachers facilitate math learning among toddlers?
2. How do toddlers learn math in group care?

METHOD

- 12 early education teachers
- 7 monthly professional development training sessions on early math education.
- Math content includes: number sense, counting, number operation, sets, pattern, shapes, etc.



DISCUSSION

There are various teaching strategies to teach toddlers mathematics. For example, selecting appropriate math materials is one of the most important teaching strategies. By choosing larger dice with only a few dots instead of colorful bears, toddlers were prompted to use counting more rather than just matching. It is also important to be aware of what toddlers can do easily (i.e. counting 1 and 2) and what they can do with help (i.e. counting 3, 4 and 5). Starting with a smaller number is age appropriate for toddlers. To engage toddlers in math play by using familiar books is also a good strategy. Toddlers were not only provided with a “math” problem within story context (i.e. how many times does gorilla tap her chest), but also with a hands-on manipulative to solve math problems (i.e. knowing how many ducks left by peeling off ducks from fingers and counting). Toddlers showed incredible interests in those activities.

As previous studies suggested, early childhood teachers can provide young children with math manipulatives, use story time to read math books, and use math words during activities to encourage math learning (Jacobi-Vessels, Brown, Molfese, and Do, 2016). There is little evidence of teachers’ using math language during activities in this project. For the future studies, we would like to explore more about how to talk with toddlers mathematically. It is a challenge, but once teachers begin to support math in the environment it becomes successful learning experiences for everyone!

RESULTS

Teachers’ Teaching

Lesson 1. Number Sense

Big idea: Quantity is an attribute of a set of objects and we use numbers to name specific quantities.

Goal: Toddlers are able to match the correct quantity of objects on the card without adding too many or too few.

Materials:

Counting bears of different colors & sizes



Reflection: Toddlers are aware of small numbers (quantity).

Providing children with dots might be simply enough to prompt counting, rather than matching.

Lesson 2 Counting

Big idea: Counting can be used to find out how many in a collection.

Goal: Toddlers are able to roll the dice, and act out the movement the number of times that was on the dice.

Materials:

Book *From Head to Toe*, and self-made dice!



Reflection: Toddlers are able to count small numbers by one to one correspondence with teachers help. Toddlers like to be engaged in activities. Integrating counting with book reading is great.

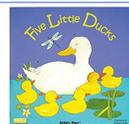
Lesson 3. Number Operation

Big idea: Sets can be changed by adding items (joining) or by taking some away (separating).

Goal: Toddlers are able to notice there are always five ducks.

Materials:

Book *Five Little Ducks*, and self-made materials!



Reflection: Five is just enough for toddlers to learn number operations. Children were engaged in hands-on activities experiencing adding and subtracting.

Toddlers’ Learning

Some toddlers grabbed one bear and counted one, and grabbed second bear and counted two. Some toddlers grabbed bears and matched to the cards without counting. Some toddlers grabbed two bears and said “8”.



Toddlers were able to wait for their turns to roll the dice. They were able to count dots on the dice by pointing to each dots. They were able to tap their chest (as gorilla did in book) as many times as the number showed on the dice.



One toddler enjoyed being duck mom and trying to find baby ducks every time. Other toddlers liked to peel off one duck from teacher’s fingers and counted with teacher. Toddlers noticed there were fewer ducks left on teacher’s hands, but more ducks in the pond.



REFERENCE

Duncan, F. J., Dowsett, C. J., Claessent, A., Magnuson, K., Huston, A. C., Klebanove, P., et al. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428–1446.

Jacobi-Vessels, J. L., Brown, E. T., Molfese, V. J., & Do, A. (2016). Teaching preschoolers to count: Effective strategies for achieving early mathematics milestones. *Early Childhood Education Journal*, 44(1), 1–9. <http://doi.org/10.1007/s10643-014-0671-4>