

COUNTING – Understanding the simple skill of counting:

Counting skills are always confused with the number recognition. Most of the time parents and teachers have the impression that if the children can call out the numbers or say the sequence of numbers as 1, 2,3 upto 10 then they have learnt counting. Children do not understand the purpose of counting in their earlier years until they reach the 2nd or 3rd grade which means until they are 7-8 years old.

It is found by researchers and teachers, that most of the children especially preschoolers and toddlers practice counting as a social experience and as a form of game that they play. It was very rare for such children to explain that it was 'to know how many' and could not connect it with concept of quantification. The children just love saying the numbers in the sequence when they perform the counting activity with the parent or teacher, hence they think saying the numbers is more important than the quantification itself. This is the reason that one sees a lot of enthusiasm in the children when the adult starts with number 1, then they just start saying the rest of the numbers in a fast paced way upto the number they know. Most of the times, the cue for starting the count is also done by the adults, hence once they start with 1... then it goes on like 2,3.. upto 20 . The other major distraction that takes away the concept of quantity is because of the physical objects that they usually use for counting and touching and handling the countable objects obscure the mental function of finding quantity.

NUMBER SENSE AND COUNTING:

The most general understanding of people is that children who have special needs face a lot of issues or have barriers to learning new concepts. Their academic inadequacy may be specific to language or mathematics or related to the type of learning that is understandable to them. The reason for their limitation can come from a physical impairment that affects their movement, sight, or hearing, or from a complex combination of several disabilities.

Some of these may be addressed by the provision of alternative teaching methods, suitable materials, appropriately adapted equipment, or personalized tutorial support.

It is commonly found that children tend to focus on one aspect of any mathematical process, such as numeral recognition or number sequencing. But the main purpose of training the child is to create an understanding which explains the connections between two concepts.

There is a common problem with children demonstrating an aptitude for one aspect of mathematical understanding, such as numeral recognition and sequencing, without being able to make connections between this and a concrete understanding of what those numerals and sequences represent.

Thus if a child can recognise and sequence numbers to 10, then usually the instructor or the parents teach the child to recognise and sequence numbers to 20. The ideal step would be rather to develop and strengthen the connections between the symbols, language, representations and concrete experiences of numbers upto 10.

Counting activity is performed as recitation of numbers vs learning the concept of number as quantity:

Counting seems to look like a simple skill, when one watches children call out the numbers in a sequence. But one fails to note whether the child has understood the concept of counting in the first place. Most commonly, it was observed in a classroom that children had ideas about counting as a group activity or to please the person who is asking them to call out the numbers in a sequence. Very rarely children understood that the activity was performed "to know about how many" and to connect it with quantification.

Most of the children's counting practice is usually performed as a mundane memory task and the children were made to focus on chanting the numbers in a sequence like how they do for alphabets. The classic example to test this is, when children are asked at this stage what is the number that come after 6, they would immediately start their counting from 1 and sometimes go beyond 6 also. This shows that they did not get the number concept in the first place.

Most common mistakes done while counting:

- They do not realise that the counting and the sequence is consistent. At one time they may count 1, 2,3,4..... and at another time 1,2,3,5,4,6.... with very little concern about their inconsistency in calling out the numbers.
- Some of these children fail to tag each item as they count, when they are asked to count a group of objects. The children may count different numbers each time they count the objects, or they may count 2 objects as one number by calling out the number slowly like "sev- en". So when asked about the total number of objects at the end of the counting, they have no understanding about the fact that the final number or count is actually the total number of objects.
- The children also do not understand that they can count any objects in the same way and they can count different objects in the same group like. (oranges and biscuits and toffees can be mixed in a bag and the same principle of counting holds good for this set of things too).

Explaining the connection between counting and quantity:

It is very important that the quantitative value of a number and the role of the number in the counting sequence should be connected in the children's minds. The children have problems in making an association between a number name (three), a number symbol (3), and the quantity. The children require multiple opportunities and different teaching methodologies to emphasise about this basic concept.

Some of the major concepts in number sense and numeration are:

Counting, mathematical operation sense, quantity, relationships and representation of numbers. These concepts are interdependent and it is very important to link the knowledge of these concepts to understand the number system.

If children from the main stream schooling have an issue about understanding the meaning of counting and its relationship with other mathematical operations, then one can imagine how the children with cognitive disabilities would struggle. Most of the times, they give a very blank look because they lack the

co ordination of one to one correspondence and they get confused whether touching the objects is important or saying the numbers in the sequence is more important. This is one of the reasons that sometimes during the teaching sessions, the children would watch the instructor's face to check whether they are doing the right thing, rather than looking at the objects that they are counting.

They get so confused and perplexed as to what they have to do with the set of objects given to them. Since they have not been explained the logic behind performing the counting activity they always keep wondering whether they have to verbally say the one, two, three in sequence or sometimes they get the feeling that touching each object in the given set of objects is more important. They fail to understand the whole meaning of the activity that they are performing

Common observations noticed when children are involved in the counting activity:

- Initially counting is more like a fun activity to be performed with the adult/ parent/ instructor where the numbers have to be recited like rhymes along with the person who is involved in the activity.
- Then the child tends to shift the focus with the physical aspect of counting, like touching and handling the objects and playing with those objects becomes their goal.
- Since they do not understand the importance of quantification they have no real reason to check and tally and it more like a game or a combined activity with the adult.

Effective strategies of teaching counting:

- 1) Teaching them the sub skills of counting is very important like itemising, ordering and naming the objects.
- 2) Recitation of numbers and knowing the number sequence and number names is also important before teaching them counting.
- 3) The purpose of counting should be made very explicit.
- 4) Counting should be used for tallying, checking, and comparing items and related to quantity.
- 5) Giving them a practical knowledge of small quantities.
- 6) Meaningful counting activities should be encouraged on a daily basis with the kind of objects that they are using in their present environment.

Counting activities starting in the house with

- (i) Number of people in the family
- (ii) Number of plates in the dining table
- (iii) Number of buttons in the dress etc.