

Confrontational Naming Task for Children: A Tool for Research and Clinical Practice

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Abstract: *Communication is the two way process of exchanging ideas, feelings and emotions. Picture naming is the most commonly used task in research as well as in clinical practice. As there is a dearth of assessment material for naming in children, the present study is an attempt to assess the naming abilities in children with respect to Indian context by developing an assessment tool. Study design included two phases. 125 children in the age range of 4-8 years were presented with confrontation naming task. Results revealed that there is a significant difference in their performance with increase in age. Thus it can be concluded that this research will address for naming abilities in children in Indian scenario.*

Keywords: Communication, Picture naming, Children, Assessment.

1. Introduction

National Joint Committee for the communicative needs of persons with severe disabilities, (1992), defined communication, as an act by which one person gives to or receives from another person information about the needs, perceptions, knowledge, desires or affective states. Communication may be termed as intentional or unintentional, may include conventional or conventional signals, may involve linguistic or non-linguistic forms, and may occur through spoken or other modes. The ability of finding names for things seen or described is central for every day communication.

Johnson (1996) stated naming as a complex process that involves the identification of an object, activation of object names in the mental lexicon and generation of a response. During the early development, children use naming as their fundamental ability to communicate.

According to Jaeger (2005) children become more proficient in naming objects and pictures as they develop which is evidenced by increase in the speed of naming and a decline in the number of errors produced in the process of naming. Naming task involves the concept which is in general. In the naming task a known object is being identified in the present environment with a specific noun. Thereby a well formed response is being elicited in the naming task in the form of a one word utterance involving the singular form of a concrete noun given in an unmarked citation case, naming tasks are especially useful in linguistic investigations of lexical access and retrieval, where complexity arising from morphological, syntactic and discourse level effects must be controlled. Naming involves lexical and non-lexical processing.

- a) **Lexical processing** means storage and retrieval of semantic information and abstract presentations connected with a particular word.
- b) **Non-lexical processing** refers to detection and perception of the visual stimuli that triggers the lexical process.

Picture naming is the most commonly used task in research as well as in clinics to assess the semantic, phonological and articulatory abilities of the children with language impairment. It is an integral part of every speech and language evaluation.

2. Literature Survey

Pena-Casanova (2005) stated that Picture naming task involves three basic stages: a) identification of the object represented, which activates visual storage or its structural representation, amid which only the physical characteristics are recovered; b) access to its semantic representation, which then allows the object to be recognized; c) lexicalization, or activation of the phonological representation, through which the name of the picture is recovered and pronounced. In addition, naming of pictures by children seems to be affected by the same variables that influence naming in adults, although younger children are less efficient in this task, attributing more alternative names than adults or older children. With maturation, children respond more accurately although it is unclear if these three basic stages of naming are affected in similar ways or whether specific stages are affected differently.

In 1980, Snodgrass and Vanderwart introduced a set of 400 line drawings for name agreement by native English speakers. They determined the dominant name for each picture (defined empirically as the response given by the

largest number of participants) as well as the number and nature of the alternative names provided for each picture (yielding measures of conceptual agreement and redefinitions of name agreement, in which synonyms and/or morphological variants of the dominant name were included). For the dominant names elicited by each picture, they examined the effects of variables that were known to play a central role in memory and retrieval, including various indices of frequency, age of acquisition (AoA), familiarity, image ability, image agreement, and visual complexity. Naming latencies were established for this picture set by Snodgrass and Yuditsky (1996), and contributions of the same lexical and pictorial variables to latency as well as to name agreement were determined. This set has been applied in numerous picture naming studies, sometimes with additional items (Johnston, & Williams, 2001).

Lloyd & Douglas (2007) developed Peabody Picture Vocabulary Test – 4th Edition (PPVT) for the individuals between the age ranges of 2.6 years and more than 90 years. This test measures the receptive single word vocabulary of age group from 2.6 years.

The Expressive Vocabulary Test – 2nd Edition, developed by Kathleen & Williams (2007) for individuals from 2.6 years - 90 years. This test measures expressive vocabulary and word retrieval in Standard American English.

The Test of Language Development–Primary fourth edition (TOLD–P: 4) developed by Donald & Hammil (2008) to assesses spoken language in young children between the age range of 4-8.11 years. This test includes 9 sub tests which measures various aspects of oral language.

Rick Brownell (2010) developed Expressive One-Word Picture Vocabulary Test-4 (EOWPVT-4) for children between the age range of 2-80 years in Spanish and English. Through this (EOWPVT-4) a clinician can assess the naming ability of different concepts through colour illustrations using one word, objects, actions, and concepts.

A visual object naming task standardized for the Croatian language: a tool for research and clinical practice authored by Rogić & Jerončić (2013) focussed on collecting normative data for the Croatian language using 346 visually presented objects. The research assess seven variables such as naming latency, name agreement, familiarity, visual complexity, word length, number of syllables, and word frequency. The results revealed that the normative data for pictorial stimulus is consistent with other languages. This normative data in Croatian language can be used to study different aspects such as perceptive, language and memory.

Kaplan Good glass & Weintraub (1983) developed Boston naming test (BNT). The test consists of confrontation naming task which includes 60 items and is frequently used to assess the word retrieval performance in brain-damaged patients.

Richa, Sujatha & Premalatha (2013) focused the area of research on the development of a test to assess naming ability in Hindi and Tamil speaking normal population from rural and urban areas between the age range of 25-65 years

respectively. The stimulus consists of 60 black and white drawings ordered from easiest to difficult. Results revealed that the significant effects of literacy aspect on picture confrontation naming task had a shorter latency duration compared to illiterate subjects. No significant effect on gender or age. Thus it can be concluded that this test helps to provide an idea on impact of age, gender and literacy aspects with respect to naming abilities.

Tatsuta Nakai et al (2013) developed Boston naming test (BNT) to assess the language for 7 years old Japanese children. The aim of the research is to collect normative information in Japan and to correlate the score of BNT and the Intelligence Quotient. The test was administered on 449 Japanese children. The stimuli of the test consisted of 60 black and white line drawings of objects and animals. The results of the study showed that four items had a percentile score of less than 1% and the correlation between the BNT and IQ was low.

3. Need for the Study

Majority of the tests that assessed the naming ability are available in Western context and are for adults. There are only limited tests available in the Indian context for children. Hence a need to develop a test which assesses the Naming ability in children.

4. Aim of the Study

The aim of the present study is to develop a test to assess the naming ability in children between the age ranges of 4-8 years.

5. Method

The present study aims to develop a test to assess the naming ability in children in the Indian context between the age ranges of 4-8 years.

Study Design: The study was carried out in two phases:

- a) **Phase-I:** Pilot Study
- b) **Phase-II:** Main Study

Subjects: The subjects enrolled in the study were 150 children between the age ranges of 4-8 years. Where 25 children were taken for the pilot study and 125 were taken for the children for the main study. All the subjects were taken from different schools in Bangalore city. The study was explained to the parents by the researcher and consent was taken from all the parents.

The following variables were considered while selecting the subjects.

Inclusion criteria: Subjects attending regular school without any physical, sensory, cognitive and speech and language difficulties were included.

Exclusion criteria: Subject with known history of physical, sensory, cognitive or speech and language difficulties were excluded.

Table 1: Distribution of subjects across the study design

Study Group	Age in years	No. of Children
Pilot Study	4-4.11	5
	5-5.11	5
	6-6.11	5
	7-7.11	5
	8-8.11	5
Main Study	4-4.11	25
	5-5.11	25
	6-6.11	25
	7-7.11	25
	8-8.11	25

From table 1 it can be seen that pilot study was carried out with 25 children between 4-8 years, while for the main study 125 children in the age range of 4-8 years were taken with 25 children in each group.

Materials and Selection of target words:

Snodgrass & Vanderwart (1980) introduced a set of 400 line drawings for name agreement in Western context. These Line drawings were selected for both the study designs.

Phase I: Pilot study: The test was administered on 25 children in the age ranges of 4-8 years from Bangalore city. 400 line drawings developed by Snodgrass and Vanderwart were used to assess naming ability in western context was adapted for the present study. Pilot study was executed to check the responses of children for the line drawings with respect to Indian context.

Since the line drawings are westernized, to overcome the cultural bias, the line drawings which were not named by the subjects and also rated as 1- "least unfamiliar" on the Likert scale were eliminated from the main study.

Phase II: Main study: The test was revised based upon the responses obtained in the pilot study. The line drawings that secured a score of 1-"least unfamiliar" on the Likert scale were deleted. Out of 400 line drawings 140 were eliminated and for the main study 260 line drawings were introduced to the subjects.

6. Test Administration

The test was administered on a one on one basis in a silent room. The test administration time was approximately 25-30 minutes per subject.

Procedure that was followed during the administration of the test was as follows: All the subjects were seated in a comfortable position. Before the test administration subjects were instructed using a simple language. Instructions to the subject were given in English which was "Look at the line drawing presented on the computer screen for duration of 10 seconds and name them in English.

Responses and scoring: The scores obtained for each subject were entered in the excel sheet. The scoring of the

test items were as, if correct responses were obtained, a score of one for each item was given. If no response was obtained, a score of zero for each of the test item was given. If incorrect or other responses were obtained, these responses were profiled.

7. Statistical Analysis

The data is entered in excel sheet and was statistically analysed using SPSS software version 16.0. The results were described using various statistical methods. Descriptive statistical analysis described the results in terms of mean and standard deviation across various groups included for the study. Z-Test was applied to see if there exists a significant difference between the variables taken for the study. The differences were also obtained for p value where the difference were considered statistically significant for $p < 0.05$.

8. Results and Discussions

The objective of the study was to develop an assessment tool to profile the naming abilities of children in the age range of 4-8 years. The study was conducted in two phases.

Phase I- Pilot study: The test was administered on 25 children in the age ranges of 4-8 years and necessary modifications were done.

Phase II: Main study: The test was revised based upon the responses obtained in the pilot study. 260 line drawings were presented for the subjects.

Descriptive statistics was carried out to find out the performance of children across different age groups for confrontation naming task. And p- value is obtained to find the level of significance.

Table 2: Representation of mean, standard deviation and level of significance across different age groups

Age in years	Mean	Standard deviation	P value	Level of Significance
4-4.11	211.28	8.54	0.18	NS
5-5.11	219.32	8.08	0.56	NS
6-6.11	244.36	5.92	0.001	S
7-7.11	245.24	5.95	0.001	S
8-8.11	257.44	1.92	0.001	S

*NS - no significant

*S – significant

The table depicts the total mean and standard deviation obtained for 125 children across the different age groups. P-Value is < 0.05 for the age group of 6-6.11, 7-7.11 and 8-8.11 shows that there is a significant difference in the performance of children within each group which is not found in younger age groups.

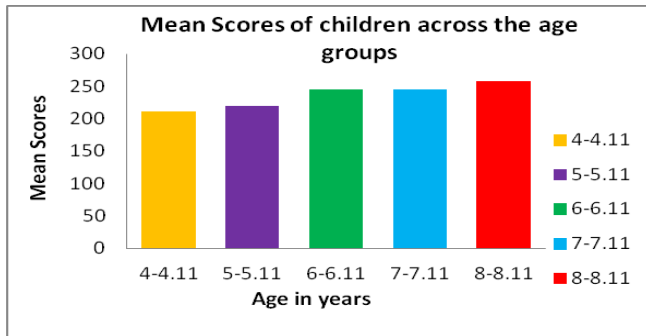


Figure 1: From the figure one can see the mean scores for the children in confrontation naming task across the age groups increases, showing better performance with increase in age.

Table 3: Depicts the error analysis for different age groups

Error Analysis					
Age in Years	4-4.11	5-5.11	6-6.11	7-7.11	8-8.11
Picture Stimuli	260	260	260	260	260
Mean Ok	16.22	20.28	23.46	23.47	24.75
Mean Error	8.78	4.72	1.54	1.53	0.25
p-value	0.42952	0.36812	0.01208	0.00001	0
Remarks	Not significant	Not significant	Significant	Significant	Significant

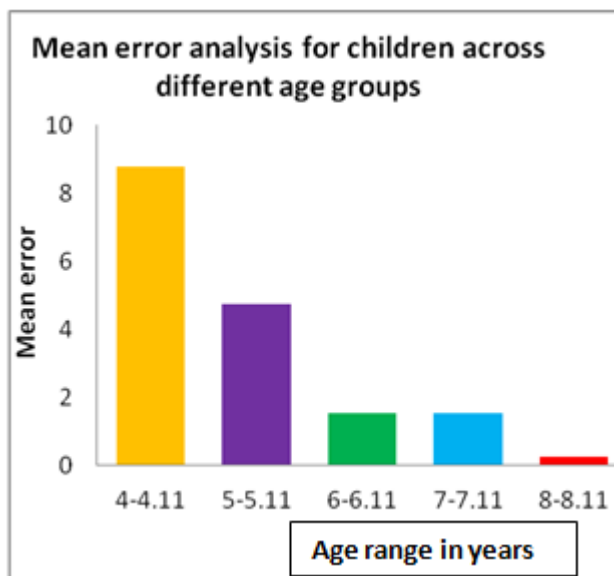


Figure 2: This graph shows the p value of the errors that decreases as age increases

Table 3 and figure 2 depict the error analysis which is carried out in our study. As one can see from the figure, it is clear that the percentage of error in the population decreases as age increases. Four year children have shown a mean error of 8.78 compared to that of eight year children showing a mean error of 0.25. This implication of the study is that the naming ability of an 8 year old child is much better than that of a 4 year old. From the table it is also evident that the number of errors observed in 8 year old child is less compared to a 4 year old. Z score indicates that mean errors of the age group. There is a clear difference between the age groups and as the age increases there is a significant difference on the performance of confrontation naming task.

Riva & Nichelli (2000) performed a study in the developmental aspects of verbal fluency and confrontation naming in children. The study included 160 children between the age groups of 5.11- 11.4 years. All the children performed verbal fluency tasks (phonemic and semantic) and BNT. Results revealed significant increase between the age groups I and II. Thus it can be concluded that children also have different subsystems responsible for the analysis and processing of different aspects of language thus this view supports our present research.

Marquez de la Plata & Vicioso (2008) grounded the area of research on the Development of the Texas Spanish naming Test. 30 pictures from culturally salient words were included. The test results demonstrated that all individuals performed better on TNT rather than using a translated version of the BNT. Thus, this study is highlighting the need for the test battery in the Indian scenario.

9. Summary and Conclusion

As there is a dearth of assessment material for naming in children, the present study is an attempt to assess the naming abilities in children with respect to Indian context by developing an assessment tool. The study included total of 150 children and were divided into two phases named phase I as Pilot study and phase II as the main study.

Phase I involved 25 children where 400 line drawings were presented and were asked to name the pictures. Since the line drawings are westernized to overcome the cultural bias, the line drawings which were not named by the children and also rated as 1- "least unfamiliar" on the Likert scale were eliminated from the main study.

Phase II involved 125 children in the main study, where it was revised based upon the responses obtained in the pilot study. The line drawings that obtained a score of 1- "least unfamiliar" on the Likert scale were deleted. Out of 400 line drawings 140 were eliminated and for the main study 260 line drawings were presented for the children. The data was statistically analysed using SPSS software and results revealed that the mean scores for the naming ability in children across the age groups increased. Thus it can be concluded that this research will address confrontational naming abilities for children between 4- 8 years in Indian scenario.

10. Clinical Implications

- Picture naming is the most commonly used task in research as well as in clinics to assess the semantic, phonological and articulatory abilities of the children with language impairment. It is an integral part of every speech and language evaluation.
- Since majority for the naming ability tests are available in Western context and are for adults. There are only limited tests available in the Indian context for children. Hence this test can be used to assess children and overcome the cultural bias.

- This test can also be used as part of assessment and treatment for the clinical population.

11. Future Directions

- It needs to standardize on clinical population like individuals with child language disorders.
- This test is done in the English language, it can be standardised in other South Indian languages.

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