THE DEVELOPMENT AND STANDARDIZATION OF A COMPETING SENTENCE TEST IN KANNADA

HEMALATHA, R.

Introduction

Jerger (1975), proposed the subtlety principle, which is as follows—The more centrally the union is located, the more subtle is its manifestation. Hence to diagnose central auditory disorders (CAD) auditory tests need to be very sophisticated. The conventional audiometric test battery does not satisfy this criteria.

Several authors have attempted to develop speech tests which may help in the diagnosis of CAD problems (Beasley and Freeman, 1977, Bocca, Calero and Cassinari, 1954; Costello, 1977; Jerger, Speaks and Trammel, 1968, Katz, 1978; Matzker, 1959). Their tests invariably use degraded speech material. Lynn and Gilroy (1977) have been particularly successful in demonstrating the clinical evaluation of central auditory tests in the diagnosis of CAD.

Willeford and Billger (1978), found that children with learning disabilities show poor performance on central auditory tests. The following test battery was administered and it was seen that the children failed on at least one subject.

1. Dichotic competing sentences.
2. Filtered CNC words.
3. A binaural fusion task.
4. Alternating speech task.

Central auditory disorders in children is not a myth. It often occurs associated with language and/or learning problems. Hence, it has become imperative that these children be identified at the earliest possible instance in order to ameliorate any social and educational problems, that may arise due to untreated disorder.

Young and Protti (1981), have reported instances where peripheral and central hearing loss have coincided compounding the problem. The accurate diagnosis of such problems required the use of a well-designed, reliable and valid test of central auditory disorders.

Willeford and Billger (1978), have found that the competing sentence test identifies children with learning disabilities.

Among the tests developed in India which may be used in the diagnosis of central auditory disorders are—the SSWtest in Indian English by Chandrashekar (1977), and the SSI test in Kannada language by Nagaraja (1977) and the time compressed speech test by Sood (1981). Of these only the SSI test may be used with the Kannada speaking population.

An attempt was made in this study to develop a Kannada competing sentence test which could be used with children for the diagnosis of learning disabilities.

METHODOLOGY

25 pairs of Kannada sentences were developed such that, the sentences were of appropriately equal length and had the same theme. Care was taken to ensure that the language level of the test does not penalize children and individuals with low intelligence level.

Examples of the sentences are :

Ramu will come for breakfast now.

Raju will go home for lunch.

The two pairs were recorded on two tracks of spool tape recorder (Uher SG 631 logic) and later the recorded sentences were transferred to a cassette. The recording was done such that the sentences began and ended at the same time.

Instructions for experiments I_{atb} and II_{atb} were as follows :

' First you will hear pure tones, when you hear the sound, raise your finger, when the sound stops drop your finger. You should raise your finger even if the sound is very soft'.

' Next you will hear two sentences in your ears simultaneously. Your job is to ignore the sentences in your right/left ear and to identify those in the left/right ear by repeating have you understood'.

In experiments I_a and I_b, ear effect was studied the experimental set-up was as shown in figuer 4_2.

(test ear)Rt   Lt(non test ear)

3.5 dbsl   50 dbsl

FIG. 1
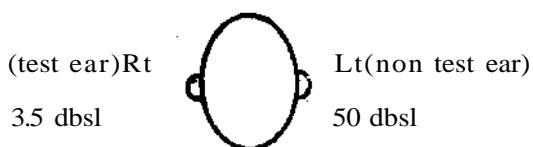
(non-testear))   Lt (test ear)
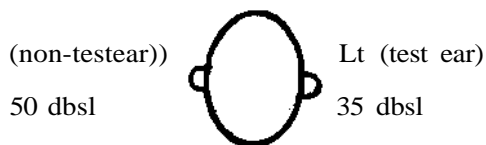
50 dbsl   35 dbsl

FIG. 2

The test was administered to 15 native adult Kannada speakers (4 males and 11 females). They first received test sentences in the right ear and competing sentences in the left ear. After an interval of one month (to over come any effect of memory) the test was administered to the same subjects in the reverse order.

In experiments II_a and II_b test effect was studied. 15 native adult Kannada speakers (4 males and 11 females) who were different from the subjects used in the above study were tested.

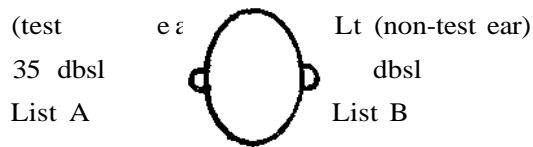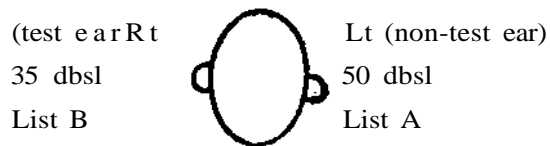The experimental set-up was as shown in Fig. 3 and 4.

(test   e a   Lt (non-test ear)
35 dbsl   dbsl
List A   List B

FIG. 3

(test e a r R t   Lt (non-test ear)
35 dbsl   50 dbsl
List B   List A

FIG. 4

In II_a, list A served as the target sentences while list B was the competing message. In II_b, sentences of list B were used as the target sentences and the sentences of list A were used as competing sentences. The target sentences were given at 35 dbsl and competing sentences were presented at 50 dbsl (re. pure tone average).

Expt. III was similar to experiment II_a and II_b. Here the subjects had to repeat both the sentences (target and competing). The sentences were administered at 35 dbsl. This was done to determine dominance.

Instructions for Experiment III

'You will hear the sentences presented simultaneously to the two ears. Your job is to repeat both the sentences. Don't try to concentrate on any one ear while ignoring the other. The task, is a bit tough, hence you should concentrate on the task.'

Results and Discussion

In experiment I (a+b) the mean percentage score for right ear was found to be 95 per cent and for the left ear was 93 per cent. There was a slight difference of

2 per cent between the means of the right ami left ears. However, this was not found to be statistically significant as determined by the Wilicoxon matched pairs rank test. Hence, it can be concluded that any results obtained using this Kannada CST, is not likley to be biased by ear effect.

In experiment II_a and II_b list, effect was studied. The results showed ZY different between the means obtained for list A and B. This difference between the scores obtained for list A and list B is not statistically significant at 0.5 level. Hence the two lists are similar.

In experiment III_a double report paradigm was used. A mean score of 79 per cent in right ear and 47 per cent in left ear was obtained. This difference was found to be statistically significant at 0.5 level of significance as determined by the Wilicoxon matched pairs signed ranks test. Hence it can be concluded that when CST is used in a double report paradigm, it can be used to identify dominance and ear effect. When used in a double report paradigm, it can identify auditory perceptual disorders.

A single left-handed subject showed 100 per cent scores in both ears. Hence no ear difference was seen.

Conclusion

The CST can be used to study central auditory disorders.   It is sufficiently challenging test to be used for identifying children with learning disabilities. Normal subjects obtain a score of 95 per cent in left ear.   When administered in a double report paradigm, the test can be used to determine dominance.

REFERENCES

Beasley, D.S. and Freeman, B.A.: ' Time Altered Speech As a Measure of Central Auditory Processing in Keith, R.W. (Ed), *Central Auditory Dysfunction.* New York, Grune and Stratton, 1977.

Boccae, Calero, C. and Gassinari, V.: A new method for testing Hearing in Temporal Lobe Tumors; preliminary report. *Ada Otolaryngol.,* 44; 219-221, (1954).

Chandrashekar, S.S., An exploratory study of the performance of normal Indian listeners on the staggered spondiac word test developed in English for Indian population. Unpublished Master's Dissertation. University of Mysore, (1973).

Costello, M.R.: Evaluation of Auditory Behaviour of Children using the Flowers-Costello test of Central Auditory Abilities. In Keith, R.W. (Ed.), *Central Auditory Dysfunction,* New York, Grune and Stratton, (1977).

Jerger, S. and Jerger, J.: Extra and Intra-aural Brain Stem Auditory Disorders. *Audiology* 14: 93-117, (1975a).

Jerger, J., Speaks, O. and Trammel, J.: A new approach to speech audiometry *J. Speech Hear. Disorder,* 33: 318-328, (1968).

Katz, J.: Clinical Use of Central Auditory Tests. In Katz. J. (Ed.), *Handbook of Clinical Audiology,* Baltimore, Williams and Wilkins Co., (1978).

Lynn, G.E. and Silroy, j . : Evaluation of Central Auditory Dysfunction in Patients with Neuro logical Disorders, In Keith, R.W. (Ed) *Central Auditory Dysfunction,* New York, Grune and Stratton, (1977).

Matzker, J., Two New Methods for the Assessment of Central Auditory Functions in cases of Brain Diseases. *Ann. Otol. Rhinol. Laryngol.,* 68: 1185-1197 (1949).

Nagaraja, M.N.: Development of a Synthetic Speech Identification Test in Kannada Language *J. All India Institute of Speech and Hearing,* 8: 11-18, (1977).

Sood, S.: Perception of time compressed CNC Monosyllables by non-Native speakers of English, Published Master's Dissertation, Mysore University, (1981).

Willeford, J.A. and Billger, J.M.: Auditory Perception in Children with Learning Disabilities. In Katz, J. (Ed.) *Hand Book of Clinical Audiology,* Baltimore: Williams and Wilkms Co., (1978).

Young, M. and Protti,. E.: Central Auditory Perceptual Testing: Implications Regarding Children's Hearing Aid Fitting. *Hearing Aid Journal,* p. 8, October (1981).