Efficacy of Enhanced Colour Coded Orthographic Symbols as a Symbol Set in Augmentative Systems for CP

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Communication is very essential to human life. But approximately 70% of the cerebral palsied children manifest disturbance in their ability to communicate. Augmentative communication system (AAC) is found to be useful with a majority of cerebral palsied children (Richardson, 1975; Silverman, 1977; Reich, 1978; Romski, Sevcik and Pate, 1988).

Symbols selected for use in AAC play an important role for nonspeaking persons. They act as the medium by which nonspeaking persons communicate and they provide an inference about how these individuals perceive and construct their words. In the present study certain aspects of traditional orthography as a symbol system for cerebral palsied population was studied.

The effectiveness of different variations of enhanced traditional orthographic symbols in cerebral palsied population was studied. The subjects were classified based on the exposure to orthography into four grades which included preschool, transition, Grade I and Grade IV. While selecting the subjects, care was taken to see that the subjects had no mental retardation and other sensory and perceptual problems.

12 Kannada words were finally selected as the test material. These words were nouns, picturizable and were familiar to the subjects. Correspondingly 12 two dimensional referent pictures were drawn. This set of 12 words were modified to enhance the symbol quality in two ways. The first set was called as enhanced symbols where a syllable of the word was modified by 100% to resemble its referent. The second modification was called as semi enhanced symbols in which only a part of a syllable of a word or 50% of the syllable was enhanced to pictorially represent the referent. These two sets were drawn in black and white and in colour to match with the natural colour of the referent object. Thus four orthographic symbol sets were obtained as follows:

1. Enhance Colour,
2. Enhanced Black and white
3. Semi enhanced Colour
4. Semi enhanced black and white

A total of 48 symbols (12x4) constituted the test material for this study.

The fifty five subjects were selected for the present study. The study was carried out in 3 phases (1) screening phase (2) training phase and (3) testing phase. The subjects were selected after they were screened for the visual discrimination task. The subjects were trained to match for the 12 referent cards with the 48 test cards in training session. The test was administered on the consecutive day. Here the subjects were asked to identify and match the test card with the respective referent picture. The subjects responses varied from verbal to non-verbal (eg. pointing to the referent or by eyeblinking).

When the subjects were unable to give the responses, they were provided various cues in the form of auditory and visual cue and responses were weighed on a 5 point scale. The raw scores of subjects were tabulated and analyzed. The results were found to be as follows:-

1. Enhanced symbols play an important role. They were identified better compared to semi enhanced symbols.
2. The enhanced coloured symbols were identified better compared to enhanced black and white symbols. This reveals that, colouring the symbols acts as a cue and facilitates the identification of the words.
3. Performance of the subjects varied with respect to schooling. As the schooling level increased the performance also increased. Fourth grade children associated the referent card with the test card easily compared to the preschool children. The results show that colour contributed as a cue till the first grade which resulted in a gradual increase in the mean score of the subjects. But for the fourth grade, it does not contribute as they were able to associate without the help of the cue.

The results of the study imply that traditional orthography as a symbol set in AAC system has its clinical utility in the cerebral palsied population. Varieties of enhancement of the orthographic symbols (in the form of colour and type) to match their referent picture either partially or totally facilitate the identification of the symbol by the subjects.

Future directions:

1. The design needs to be replicated with other Indian languages and other types of clinical population such as mental retardation and autism, etc.
2. Other varieties of enhancement of the orhtographic symbols need to be explored.