A STUDY ON THE APPLICATION OF VERBO-TONAL METHOD
FOR PHONATION AND SPEECH PRODUCTION TO
MENTALLY RETARDED CHILDREN

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As language difficulties exist in almost all mentally retarded (MR) children, the development of educational programmes for language remediation is earnestly demanded. In our country, however, any concrete remedial and educational method for language development has not been systematised, as to what and how to develop, guide, and remedy the matters of practical educational methods at the initial language acquisition stage of MR children. In doing so, an attempt was made to apply verbo-tonal method developed by Huberina in 1950s to MR children.

The verbo-tonal method aimed at remediating the language of the person with great difficulties in communication has been developed based on the theory that a language is connected with the development of speech, and speech is viewed as a social phenomenon. We use speech when we try to express something or to describe an event. In this sense, the meaning of speech is transmitted by not only linguistic factors, but also the state in which audio-visual information is expressed as rhythm, intonation, loudness, tempo, pause, tension, gesture, etc.

Verbo-tonal method is originally derived from the method for the study of a foreign language, and was adopted for educating hearing-impaired children. That is, for the purpose of teaching the hearing-impaired children a "living language" through the use of resident hearing, it was attempted to find out children's optimal field of hearing through which each child can best understand speech, and to guide them so that they can hear and speak a language, by utilising "System Universal Verbo-Tonal Audition Guberina (SUVAC)." There are a number of children who have a hearing ability for low frequency or can perceive vibration even if their hearing impairment is severe. Verbo-tonal method can be utilised for the remediation and education of a language through the transformation into this low frequency. The reason is that the sound with low frequency can transmit rhythm and intonation well.

Rhythm and intonation is said to be important in that we can hear and understand a phonetic language well. Verbo-tonal method is based on the assumption that if we teach handicapped children rhythm and intonation through body movements or musical rhythm, even they can easily understand a language and express it in a natural way.
In verbo-tonal method, it is considered that language comes into being in the action of transmission and that a body participates not as a totality of simply organised meaningful sounds but as a product of a body, and rhythm and melody factors of speech play an important role in learning language. It is also considered that a body is a receiver and producer of sound, and that speech learning should not be restricted to articulation organ including tongue or palate, but should be accomplished in a state in which all the muscles of a body participate.

The ultimate goal of verbo-tonal method is to help handicapped children develop a good communication skill and to integrate them into the system of regular education. It is to inspire handicapped children with the intention that they want to listen to what others say and to talk to others. It is also to teach handicapped children the life with verbal communication necessary for growing up as a human being, transmitting their feeling with a phonetic language.

Asp and others reported that hearing-impaired children trained by the verbo-tonal training programme developed in University of Tennessee could speak better with normal children than the children who did not receive the programme (Asp, 1969, 1981; Asp, French, & Lawson, 1970; Bradbury, 1970). In other programmes, the children trained by verbo-tonal method could listen better and speak better than the children trained by speech reading (Woodfin, 1971; Woodfin & Asp, 1971), and showed better results in oral reading, listening, and pronunciation in comparison with the children trained by sign language (Duncan, 1976). The rate of integration among the children who received verbo-tonal training programme at University of Tennessee increased from 58% during 1972-73 to 60%, 62%, and 71% respectively during 1976-1978 (Asp, Archer, & Kline, 1979).

According to the trend of recent research reported by SUVAG Centre in Zagreb, Gent Centre in Belgium, and University of Tennessee, a language can be effectively remediated in a shorter time by widely applying verbo-tonal method to the language disabled children with normal hearing ability, such as delayed language, stuttering, voice disorder, or articulation disorder, and to adults with aphasia (Asp, 1981).

Stajnko and Lipovesk at Zagreb Centre helped neurologically impaired persons with normal hearing ability through verbo-tonal method to normal-hearing pre-school children with severe movement and vision problems in addition to severe language disorder, by providing group and individual training programmes focused on rhythm and body movements everyday. They reported that these children could improve the pattern of rhythm and intonation, pronunciation, gross motor skill, and movement.

Therefore, the purpose of this study is to develop a remedial and educational early childhood language programme by applying verbo-tonal method to MR children, and to examine the effects of the training programme by employing other categories of handicaps. For the purpose
of the present study, the following problem was addressed: What are the effects of the training programme of phonation and speech production by verbo-tonal method on the ability of phonation and speech production in MR children as compared with those in hearing-impaired children and autistic children?

METHOD

SUBJECTS

For this study, four MR, three hearing-impaired, and five autistic children were selected from a clinic centre for preschool children in Seoul (CA: 3.6-5.5 years). MR subjects were children whose IQ ranged 50-70 without showing emotional disturbance and other sensory disorders. Hearing-impaired subjects were those who had hearing loss of above 70 dB, and did not show emotional and sensory disorders. Autistic children were identified by clinicians.

TRAINING PROGRAMMES FOR PHONATION AND SPEECH PRODUCTION

Since the Speech and Hearing Centre was opened, approximately 1,600 children have been diagnosed and educated. In order to apply the verbo-tonal method to our country, the present author attempted to develop training programmes for phonation and speech production suitable for the vowels and consonants of the Korean alphabet. The contents of the training programme for each area of handicap are composed of three parts as follows:

1. Preparatory training programme which is subdivided into three parts: establishment of relationship, attention, and imitation of movement.

2. Basic body movement for phonation to apply the method of phonetical rhythm system through body movements.

3. Training programme for phonation and speech production which is subdivided into two parts: a programme for phonation and a programme for speech production. These were developed matching to characteristics of each handicap area. The programme for speech production training employs situational plays, in which meaningful, interesting, and concrete situations are created, and within those situations, appropriate speech is produced more while utilising body movements as a supplementary programme.

Here, all sounds are not accompanied with body movements for each sound. Rather, body movements are used only for specific parts of certain words to express. For the rest of the parts of those words, children are asked to follow only rhythm. For autistic children, however, the programme for sound production within play situations was not feasible. Therefore, the programme was implemented to only two groups—mentally retarded and hearing-impaired.
EDUCATIONAL TRAINING INSTRUMENTS

The auditory training by verbo-tonal method was conducted through instruments known as SUVAG. SUVAG I is an auditory training unit which has a wide frequency response extending from 0.5 Hz to 20,000 Hz, electrically. It has been used for group activities and for individual therapy at the beginning period in which a young child learns the pattern of rhythm and intonation of the speech signal. Microphone producing low frequency of high tone transmits speech to SUVAG amplifier. The sound produced from SUVAG I is a sound of considerably low frequency zone (0-1000 Hz), and is received through the specially devised vibrator (SUVAG Vibar) or vibrating play board (sounding board) and a headphone (Koss, Model K-6). The vibrating tactile input induces tension so that children may speak, helps the formation of appropriate tone, and is useful in perceiving normal rhythm and intonation pattern. Thus, it leads children to perceive speech through the hearing mechanism.

TEST INSTRUMENTS

In collecting the data, pre- and post-test were administered with three tests.

Nonverbal test (Borel-Maisonny test) This test consists of a main test measuring the level of mental ability and a supplementary test. The main test includes (a) drawing geometric forms, (b) matching and making stairs, (c) closing and opening the plug and picture completion, and (d) putting in a metal wire and block design. The supplementary test includes assembling, tying a string through holes of a plastic board, building tower, etc. The age level for test measurement ranges from 2 to 5.5 at intervals of 6 months.

Tests for language comprehension and expression These abilities were measured by (a) Thibergie test and (b) observation method. Thibergie test composed of 13 picture cards is to assess the age level of language comprehension between the ages of 1.5 and 5, and language expression between the number of sounds and words either spontaneously produced by the subjects or expressed by the subjects through stimuli (pictures/objects of words or teacher's phonation/speech production).

Checklist of autistic children-II (CLAC-II) CLAC-II is a behaviour rating scale which consists of 24 categories of behaviour using a five-point scale ranging from "step 1" of the lowest degree to "step 5" of the highest degree. The categories include eating habit, self-help, language activities, etc. The step for each category produces the age of accomplishment.

DATA ANALYSIS

The period of experiment lasted approximately one year. In analysing the data, the case study observation method was used to describe the test results and behaviour change of the subjects.
The findings obtained from the implementation of training programmes for phonation and speech production by the verbo-tonal method indicate that before training, all subjects in three categories showed much difficulties in positive relationship with teachers, separation from mother, and the ability to attend and imitate. According to clinical records, after about two months, they were ready for the training of phonation and speech production.

In the level of mental ages measured by nonverbal test before and after training, the level of MR children improved from 2-3.5 years. One MR child who could not be tested appeared to have a mental age of 2-2.5 years after training. The level of language comprehension changed from following very simple directions to understanding names of objects as well as less simple directions. The level of imitation spontaneous expression improved from rhythm/melody imitation for about 15 1-2 syllables or 1 word to that for about 100 although with inaccurate pronunciation, and from spontaneous expression of approximately 10 one word to that of approximately 50 one word.

The level of mental ages in hearing-impaired children improved from an average age of 4 years to that of 5-5.5 years. Nonexistence of language comprehension and concepts and inability of phonation and speech production changed to being able to follow directions, to show basic concept-formation of objects, and to use spontaneously about 10-100 1-2 syllables or 1 word. Particularly, these hearing-impaired children could pronounce words with natural pattern of intonation.

Autistic children showed a gradual development in self-regulation, personal relationships, and play activities, while they still showed passive behaviours in manifesting verbal ability possibly due to obstacles to develop, such as strong opposition to changes or self-stimulation. Four out of five autistic children formed the ability to imitate syllables or words, and one autistic child reached a prestige of language imitation. Here, the language imitation was possible only after the formation of behaviour imitation. Simultaneous imitation of both behaviour and language has been then developed.

Overall, the findings obtained from the present study are summarised as follows:

1. Training programme for phonation and speech production by verbo-tonal method has been found effective for developing the ability of phonation and speech production in MR children.

2. Training programme for phonation and speech production by verbo-tonal method has markedly developed the ability of phonation and speech production in hearing-impaired children.
3. Training programme for phonation and speech production by verbo-tonal method has been found effective for stimulating the development of phonation and speech production in autistic children.

DISCUSSION AND RECOMMENDATIONS

On the basis of the results obtained in the present study, the following features are discussed.

First, in terms of effective development for phonation and speech production in MR children, the results appeared to be in agreement with those reported by SUVAG Centre, Gent Centre, and University of Tennessee, in which programmes developed through verbo-tonal method were applied to children with articulation disorders and learning disabilities, and showed effective results similar to those from hearing-impaired children.

Second, with regard to the marked effectiveness to hearing-impaired children, the findings of this study support those obtained by Asp (1969), Bradbury (1970), Duncan (1976), and Woodfin (1971), in which hearing-impaired children trained by verbo-tonal method showed improvement on communication skills, auditory training voice, rhythm, and intonation pattern.

Third, in connection with effective stimulation for the development of phonation and speech production in autistic children, Stajnko and Lipovsek provided similar results that training programme through rhythm and body movement was effective in developing natural rhythm and intonation pattern, clear pronunciation, and motor skills of children with severe disorders in both language and movement.

The results of this study, which have not only exhibited the marked effectiveness to hearing-impaired children but also showed the possibility of applying the training for phonation and speech production to both mentally retarded and autistic children may suggest that the use of verbo-tonal method to these children could lead to their effective language remediation in a shorter time.

For data analysis, the present study used case study observation method. In the future, if experimental studies are conducted employing a control group with larger sample size, they could provide more valid outcomes concerning the effects of training programmes by verbo-tonal method.

Relating to test instruments, efforts need to be made to develop more objective instruments. They would allow to measure the level of phonation and speech production for each subject with higher reliability. In addition, such an effort would facilitate the development of systematic training programmes for preschool exceptional children.
In conclusion, the present results suggest that the verbo-tonal method can be a natural and effective remedial, educational method for many, various handicapped children with language difficulties including the mentally retarded. Furthermore, they imply that most of the handicapped children trained by the method presented in this study could develop communication skills to be able to communicate naturally with non-handicapped people, and thus to be integrated into regular educational environments and society.

REFERENCES


