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PHD THESIS SUMMARY: THE PHONOLOGY OF LANGUAGE DISORDERED CHILDREN

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INTRODUCTION

Not all children learn to speak at the same age and in the same seemingly effortless way. Some children have greater difficulties than others in acquiring language though there is no apparent reason for why this should be the case, such as defective hearing, mental subnormality, neurological dysfunctions, or emotional disturbances. When referred to a speech clinic, their problem is diagnosed as a functional articulation disorder, retardatio loquendi idiopathica, indicating that there is no known etiology for the difficulties.

Within the group of language disordered children, variation is considerable. In phonology, for instance, where the same patterns of substitution and deletion have been identified for many of these children, there is interindividual variation both in terms of phonological rules and in the conditions for their application. The children appear to differ not only in terms of how much and in what way they respond to language therapy. These observations suggest that children diagnosed as exhibiting a functional articulation disorder do not constitute a homogeneous group and that not all members of the group have the same degree or type of language difficulties.

In order to examine the variation within the group a study was undertaken with the aim of identifying clinically relevant subgroups on linguistic criteria. The study focuses on the following questions as a possible basis for such a subclassification:

1. What characterizes language disordered children's produced forms and how do they differ from the normal adult forms?

2. To what extent can these children's produced forms be explained by limited production, perceptual, or processing abilities and to what extent by a different organization of the phonological system?
3. What kind of awareness do language disordered children show of phonological forms?

PROCEDURE

In order to examine these questions, an investigation was made based on the following kind of data:

Speech production Children's speech was recorded during conversation and the naming of pictures. The elicitation material had been prepared so that the items were varied as to number of syllables, syllables structure, and stress patterns. All Swedish vowels and consonants were represented in pre-, inter-, and post-vocalic position under different stress conditions. Frequent consonant clusters were also included.

Auditory discrimination Sounds which the children did not use correctly were tested in minimal pairs where the two members of a pair were differentiated by a contrast made up of the sound that the children did not manifest and the sound they used as a substitution. If children were saying e.g. [sø:k] for /çø:k/, (kitchen), i.e. were using [s] as a substitution for /ç/, they were asked to identify a pair like [su:l] - [çu:l], (sun, skirt), two words that were homophones in the children's production. They were required to do this by pointing to one of two pictures when someone else was uttering the words and when they were listening to their own recorded version of the same words.

Imitation The children were asked to imitate the minimal pairs and to imitate the substituted sound and its substitute in nonsense syllables where both position and vowel contexts were varied.

Rhyming The children were asked to choose rhyming word pairs out of sets of rhyming and non-rhyming words.

Longitudinal data The longitudinal data consist of information about the children's phonological development during the 12 months subsequent to the investigation as described in their hospital records.

SUBJECTS

The subjects were 32 children with the diagnosis retardio loquendi idiopathica in the age range from 3;9 years to 6;6 years, 10 girls and 22 boys. At the time of the investigation, none of them had yet been enrolled in therapy programs.

RESULTS

The children's spontaneous speech production is described primarily in relation to the normal forms, i.e. the description is an account of the regularities in the differences between the child forms and the forms in the target language. The relations between child forms and adult forms are analysed in terms of processes, here defined as procedures or strategies that children use when modifying normal adult forms so that they be processable for an individual with a child's perceptual, productive, and cognitive capacity. In cases where the child's forms deviate markedly from the norm, a description of conditions exclusive to the system of that particular child is also made. The description is made both on a group level in order to bring out general tendencies and on an individual level in order to show individual preferences and patterns in the application of processes.

On the basis of individual patterns in the production data, four subgroups can be indentified, namely

1. Children whose speech is nearly normal (4 subjects)
2. Children in whose speech implicational patterns can be found (17 subjects)
3. Children who have one dominating segmental problem (5 subjects)
4. Children whose speech is characterized by a restricted number of word patterns (6 subjects)

1. Nearly normalized group Since the subjects had no consistent substitutions, auditory discrimination testing was not motivated in more than one case. Results on the rhyming test vary, indicating that normal or nearly normal speech does not guarantee an ability to rhyme.

2. Implicational pattern group The degree to which the children in the group deviate from the norm differs but they are classed together since the same implicational ordering, with only a few

exceptions, can be observed in the patterns they exhibit. Implicational patterns are found only if different types of processes, substitutions, cluster reductions, and word structure processes are considered separately. The children also vary in terms of auditive discrimination, self-discrimination, and rhyming and this variation can be seen as a consequence of the children's differing developmental levels.

3. Special problem group The children in this group all have one dominating problem which almost exclusively characterizes their speech. They substitute one segment or one type of segment and not the types that are the latest to be acquired by normally developing children. All subjects manage auditive discrimination and four out of the five children in the subgroup can discriminate forms in their own speech which are perceived as homophones by an adult listener. Three children can rhyme.

4. Word pattern group The children in this subgroup show a preference for a small number of word patterns. Restrictions of word structure seem to be a more important determinant of their speech than substitution or cluster reduction patterns. All except one of the children are unsuccessful on auditory discrimination and half of them identify homophones in their own speech correctly. Only one of the children showed some understanding of rhyming.

CONCLUSIONS AND CLINICAL IMPLICATIONS

The conclusions that can be drawn from this study of language disordered children's phonology are that they follow a generally recognized developmental order with some individual variation. This variation is not totally random but of a kind where similarities emerge between children which make a subclassification possible based on the individual children's developmental patterns. One group largely follows what is considered a normal phonological development, though slower. In the other two groups the children's patterns show chronological mismatch in that their phonologies have characteristics typical for both early and late phonological acquisition. For one of these groups, one segment or one class of segments is problematic and for the other, a small number of preferred word patterns place restrictions on their forms.

The motivations for the children's forms may differ depending on the degree and type of deviance. Perceptual problems are more apparent among children early in development, motor production problems predominate in the special problem group while processing problems and phonological organization are more important as motivations for forms in the word pattern group. In the implicational pattern group, all types of motivations may exist in varying degrees and combinations.

The acquisition of the phonology of a language is not only evidenced in production and perception of word forms but also by the ability to consciously manipulate phonological forms and to reflect upon language i.e. linguistic awareness. Linguistic awareness is not directly related to phonological ability as it is evidenced in speech production. A nearly normal speech does not guarantee a linguistic awareness, which might be quite developed in a very deviantly speaking child. To include linguistic awareness in the assessment of phonological disability increases the possibility of further differentiation within the group of disordered children and is also of interest because of its importance for learning to read and write.

For a valid assessment of phonological ability, it is thus not sufficient to study children's production. Such data need to be supplemented with information about possible motivations for the forms and about the children's linguistic awareness. Increased knowledge about the variation and patterning within the group may contribute to the further development of differential methods in clinical assessment and intervention. More specifically, descriptions of subgroups may be helpful in discovering patterns for individual children and, especially, patterns in seemingly unsystematic children where the organizing principles may not be immediately apparent. A differential diagnosis may provide guidelines for the planning of therapy directed towards overcoming the individual child's problems by concentrating on modifications of word pattern and/or the establishment of phonemic contrasts and their phonetic manifestations, as well as for allowing for different learning styles and motivations for the forms.

