

RHYME OR REASON?
ON LANGUAGE DISTURBED CHILDREN'S RHYMING

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Rhyming is something that most children at one time of their development are fascinated by. What I have in mind are rhymes like "Humpty Dumpty sat on the wall.

Humpty Dumpty had a great fall.
All the king's horses,
All the king's men
couldn't put Humpty together again".

Learnt conventional rhymes like these are not the only kind that children use and enjoy. They also seem to take advantage of the discovery that they can produce an unlimited number of rhymes of their own invention, an ability they make frequent use of in games, dialogues, teasing etc.

Language disturbed children, on the other hand, are remarkably insensitive to rhymes. This is a fact I have often observed when working as a speech pathologist with such children. In a nursery rhyme or rhymed story, normal children easily fill in the left out rhyming words while language disturbed children have difficulties in doing so, even if they are familiar with the story and it has been read to them several times. If they suggest a word, it is in most cases more or less appropriate in the semantic context but it is most likely not a rhyming word. Why then is rhyming difficult for these children? What is it that they cannot do?

What we do in rhyming is to separate the prevocalic element(s) of the stressed syllable from the rest of the syllable or the word and to use what is left of the syllable or the word as a model when producing new rhymes. To do this requires

- ability to segment within the syllable, to segment phonemically,
- ability to identify segments as vowels and consonants, in order to be able to make the delimitations in the correct places,
- ability to identify the stressed syllable,

- knowledge of the segmental order in the sequence.

It has been suggested by Moskowitz (1971) and Waterson (1971) among others, that children early in language acquisition use the syllable or a larger unit like the word as their basic phonological unit. Data suggest that this may be the case for at least some language disturbed children as well and that the disability in rhyming found in these children may correlate with their prolonged use of the syllable. They would thus not be able to participate successfully in an activity like rhyming which requires an ability to segment within the syllable.

Some support for this is given by Savin (1972) who claims that children, "normal middle-class children", do not learn to segment phonemically until after the age of five. By the age of five, most children have acquired the main part of the phonological rules of the language as evidenced by their speech which is by then easily intelligible. Five-year-old language delayed children do not have the same control of the phonological rules. This leads to the question whether there is a correlation between rhyming and level of phonological development.

Some of the forms produced by language disturbed children differ from the normal forms. When this is the case, on which forms do the children make their rhyming operations, on their own produced forms or on the normal forms?

Subjects

The subjects are 28 children, aged 3;9 to 6;6 years, with the diagnosis retardatio loquendi idiopathica. The diagnosis means, among other things, that there is no easily identified etiology for the disorder, that psycho-motor and social development is roughly normal, and that there is no diagnosed neurological dysfunctions, Hearing is normal as shown by tone audiometry. In this group, I have studied the children's speech production, their ability to make auditive discrimination in their own and in other people's speech as well as their performance on a rhyming task.

Procedure

Eight sets of pictures with three pictures in each were used (see table 1). Two of the pictures in each triplet represent words that rhyme, and the third is used as a distractor. The distractors consist of words which have the same prevocalic and sometimes the same vocalic segments as one of the rhyming words, or which have a strong semantic association with one of the rhymes, as in the triplet gran-kran-bada (fir-tap-bathe).

Table 1. Test material

åtta råtta äta	(eight rat eat)	pil bil boll	(arrow car ball)
hår får fot	(hair sheep foot)	kran gran bada	(tap fir bathe)
såg tåg tår	(saw train toes)	klocka docka flicka	(watch doll girl)
sol stol skor	(sun chair shoes)	hatt katt kam	(hat cat comb)

The principle of rhyming was demonstrated to the children. Those, who did not seem to understand the meaning of the word "rhyme", were told that their task was to select the two pictures out of three that "sound alike at the end". The test triplets were then introduced in conversation. I named the pictures and tried to discourage the children from naming or repeating the words. They were then asked to respond by selecting what they thought were the two rhyming pictures in each of the eight triplets.

Pretesting

Before starting the main study, I tried out the test material on four children with normal speech, aged four to six years, in order to ensure that children of this age could perform the kind of task required. None of the four children had difficulties in understanding the task and they picked out the rhyme pairs without any hesitation. Some of them also produced new rhymes spontaneously, rhymes both with and without a semantic content.

Results and discussion

If the children had merely made chance choices, the expected distribution of correct answers per individual would have been as shown in fig.1. One child would have made no correct answers, four children would have made one correct answer, eight children two correct answers etc. The distribution of

the children's correct choices observed in this study differs markedly from the expected distribution as can be seen in fig. 1. The children who made six or more correct answers have apparently used a rhyming strategy, since no child making exclusively chance choices was expected to make more than five subjects

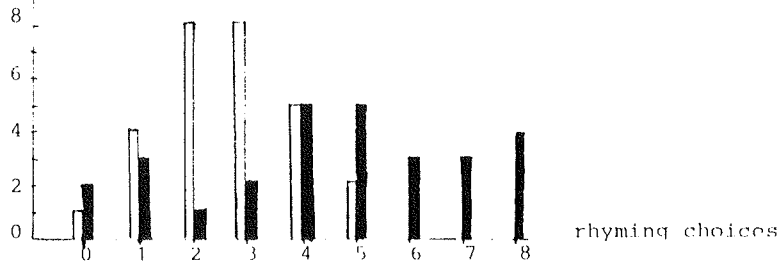


Fig.1. Expected distribution of random choices (white column) and distribution of actual choices (filled column).

correct answers. It is however a matter for discussion which criterion ought to be used to categorize a child as a rhymers. If a criterion of five correct choices is used, this would be equivalent to a chance level of 10 percent and thus allow a certain amount of uncertainty. Ten children are classed as good rhymers if a criterion of six or more correct answers is used and fifteen if the criterion is five or more correct answers.

Rhyming and level of phonological development

My next question is concerned with the relationship between rhyming and level of phonological development. Phonological developmental level or in this case rather degree of deviance, was assessed in the following way. A rating system with numerical values was used. The children's speech production was analysed in terms of linguistic simplification. Each process was assigned a numerical value in relation to its propagation in the system, to the number of possible contexts where it is actually applied and to the frequency of application in possible contexts for each child. Processes frequently used early in children's language acquisition were assigned a low figure and processes prevalent later in development were assigned a high figure. This gives a system where each child's degree of deviance is indicated by a figure. These values must however be treated with caution since they are based on ratings and they

are employed here not as an exact measure of deviance but only as a rough estimate of the phonological level.

Fig.2. shows the relation between rhyming and degree of phonological deviance. As can be seen, the range of variation is considerable. Some children with a high degree of deviance can rhyme and some with a nearly normal speech can not. The correlation for the whole group is -0.31 .

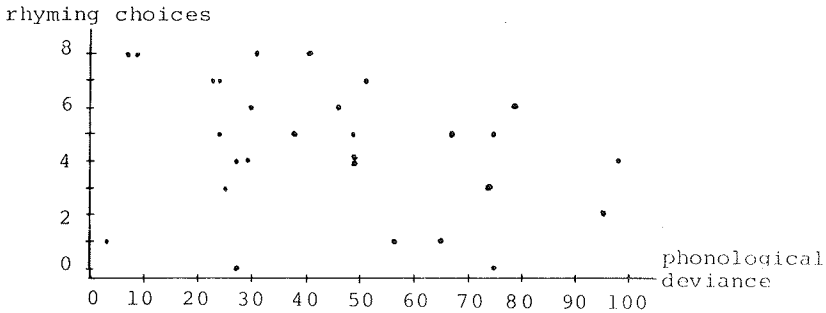


Fig.2. Relation between rhyming choices and phonological deviance.

In the rhyming group, where the criterion is either five or six correct choices, the tendency is toward a negative correlation, -0.60 for the group with six or more correct choices. The tendency is that the good rhymers have a lower degree of deviance or a more normal speech than the poor rhymers.

In the non-rhyming group, there is no such relation as the correlation is -0.01 for the group with five or less correct choices. Several hypotheses are possible. The non-rhyming group consists of children who are not able to rhyme, or of children who are not able to handle rhyming tasks of this particular kind or of a combination of both.

In order to test this, some of the children were excluded from the non-rhyming group, namely those children whose degree of phonological deviance was the same or lower than the mean value for the rhyming group. Even so, the correlation was -0.20 . A possible interpretation is that there is more variation in phonological development in the non-rhyming group than in the rhyming group.

These results are in agreement with other findings. Studies dealing with phonetic segmentation and early reading acquisition indicate that all normally speaking children are not able to segment phonemically or to rhyme (Lieberman et als,1977,

Savin, 1972). On the other hand, normal speech is not necessary for an understanding of the rhyming principle (Curtiss, 1977).

Error analysis and representational form

When the children did not choose the two rhyming words as a pair, were their choices totally random or were they made according to some other principle?

One of the original hypotheses was that language disturbed children make semantic choices. It appeared, however, that this was hard to test. The children rarely chose pairs which have an obvious semantic association by adult standards, but it can not be excluded that some of their choices were made on semantic grounds nevertheless. Since they were not asked to motivate their choices, it is difficult to decide whether a semantic strategy was used or not.

In their erroneous choices some children prefer pairs that have identical initial consonants. More children choose for-får as a pair than fot-hår, tår-tåg is a more likely choice than tår-såg. This tendency is even stronger, if it is assumed that the children compared their own produced forms and not the normal forms that they heard. One boy's performance may illustrate this. He made no correct rhyming choices and in three cases he indicated all words in the triplets as rhymes. On the other hand, if his results are analysed with the assumption that he made his choices on the basis of identical initial consonants in his produced forms, this accounts for six of his choices. Furthermore, in one case, he said that all the words were different, which they were in his production.

Can children who choose words with identical initial consonants segment within the syllable? One possibility is that they compare syllables as wholes and that the initial resemblance is sufficient for their decision which might then be based on similarity of syllables and not on identity of parts of syllables. Another possibility is that they are able to segment within the syllable but have insufficient knowledge of the order in the sequence.

Choices based on identical initial consonants result in a rhyming pair of words even if it is not the kind of rhyme that

the children in this study were instructed to make. The children in this case made alliteration instead of end or full rhymes. Historically, alliteration is an older kind of rhyme and one of the kinds that occur in old Icelandic poetry as in the Poetic Edda (Oldberg, 1945, Hallberg, 1970). End rhymes did not appear until later and it has been suggested that they originate from the older kind of rhymes such as alliteration. The same kind of development may be hypothesized for children, so that alliteration is mastered before end rhymes. This hypothetical ordering is supported by the observation that alliteration choices were more frequent among the good rhymers than in the non end rhyming group implying that children first acquire an ability to segment within the syllable and only later become aware of the sequential ordering.

In conclusion it can be said that children who are able to rhyme have a lower degree of phonological deviation or a more normal speech. But rhyming is also possible for individuals with deviant speech production. A more normal speech, a better knowledge of the phonological rules of the language, does not necessarily involve an ability to rhyme, to segment phonemically. Something else and more is needed than the control of phonological rules as it is shown by speech production. One possibility is that rhyming has a closer connection with perceptual than with productive ability and that perceptual competence is more developed in the deviant speakers who rhyme than in those who do not. An alternative explanation is that rhyming has to do with such vaguely defined notions as linguistic awareness or metalinguistic ability and if so the control of phonological rules in perception and production is of minor interest.

References

- Curtiss S. 1977. Genie. A psycholinguistic study of a modern-day "wild-child". Academic Press, New York
- Hallberg P. 1975. Litterär teori och stilistik. Akademiförlaget, Göteborg
- Liberman I.Y., D. Shankweiler, A.M. Liberman, C. Fowler, and F. W. Fischer. 1977. Phonetic segmentation and recoding in the beginning reader. in Towards a psychology of reading:

- Proceedings of the CUNY conference. Eds. Reber and Scarborough. Hillsdale, New Jersey
- Moskowitz A. I. 1971. The acquisition of phonology. Dissertation, University of California, Berkeley
- Oldberg R. 1945. En bok om rim. C.W.K.Gleerups förlag, Lund
- Savin H.B. 1972. What the child knows about speech when he starts to read. in Language by ear and by eye. Eds. Kavanagh and Mattingly. The M.I.T. Press
- Waterson N. 1971. Child phonology: a prosodic view. Journal of Linguistics 7, 170-221