ASSESSING PHONOLOGICAL PROCESSING THROUGH RHYMING ABILITIES

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ABSTRACT. This paper is focused on assessing phonological abilities through rhyming abilities. These rhyming abilities are addressed by: rhyme exposure, judging upon rhymes, matching the rhyming words, producing rhyming words. Working procedures reveals a psycho-linguist approach for assessing rhyming abilities, this approach being implemented in the situation of a Pierre- Robin case study. The obtained results were analyzed in the context of an extended assessment session, they being able to underline the presence of a phonological processing deficit in this case. These results stress on the fact that rhyming abilities can be considered predictive factors in developing phonological abilities.

Keywords: Pierre-Robin syndrome, phonological processing, rhyming abilities, psycho-linguist perspective, rhythm awareness

ZUSAMMENFASSUNG. *Bewertung des phonologischen Prozesses durch die Reimfähigkeit.* Dieser Studie konzentriert sich auf die Bewertung der phonologische Fähigkeiten durch Reimfähigkeiten. Diese Reimfähigkeiten sind angerichtet durch: die Reimdarlegung, Beurteilung der Rhyme, Gleichsetzung der rheimenden Wörter, Erzeugung der rheimenden Wörter. Das Arbeitsprozess zeigt die psycho-linguistische Perspektive für Bewertung der Rheimfähigkeit, diese Ansprache ist in der Pierre-Robin Kasus Studie benutzt. Die gegebenen Ergebnissen wurden analysiert in der Kontext einer erweiterten Bewertungszeit, dadurch konnte die Anwesenheit des phonologisch Prozess Defizites in dieser Kasus bekannt gemacht werden. Diese Ergebnisse zeigen, dass Rheimfähgikeiten können als prediktive Faktoren für die Entwicklung der phonologischen Fähigkeiten betrachtet werden.

Schlüsselwörter: Pierre-Robin Syndrom, phonologisches Prozess, Reimfähigkeiten, psycho-linguistische Perspektive, Rhytmusbewusstsein

1. Phonological processing

The concept of phonological awareness appeared around 1970, it being mostly used in relation with the problem of writing-reading acquisition, in relation with learning difficulties topic and, implicitly, in relation with oral language disorders

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(Borel-Maisonny, 1967 apud Burlea, 2007: Verza, 2003). Phonological awareness refers to a meta-linguistic type of knowledge, it being based on language phonological structure.

Phonemic awareness represents a specific element for alphabetic writhing system, it being present in a discrete manner, during the pre-alphabetic period, but continuously developing during written language acquisition process. Phonemic awareness also includes phonemic hearing, it being a good predictive element for the future exposure to the alphabetic system coding rules. Thus, in the case of the children with learning difficulties, phonemic awareness is deficiary structured (Snow, Burns and Griffin, 1998 apud Chard, Dickson, 1999).

Phonological awareness ensures the process of segmentation, of understanding that each word has as constituent parts distinct phonemes, both segmental and suprasegmental ones. This understanding process provides the fallowing abilities: the ability to identify, to differentiate and to manipulate the sounds within a certain word. Phonological awareness refers to the ability of manipulating speech sounds (phonemes) with relevance on words` meaning.

Phonological processing includes phonological and phonemic awareness, it having the fallowing components: phonemic awareness, rhythm awareness, syllables, words and sentence awareness (Stanovich, 1993; Adams, 1990 apud Sensenbaugh, 2011).

In this paper the focus will be put on rhyming abilities, this being considered a good predictor for the entire phonological abilities. Rhyming abilities are approached, in this research, based on the directions promoted by Education Department from Virginia (1998) in projecting their curricular for early intervention. These directions are adapted according to Romanian language features.

2. Theoretical linguistic aspects on rhyme

According to linguistic theory, two words rhyme if the last stressed syllable and the two phonetic sequences that include it and the word ending are identical, e.g. "mare (big)-care (who)", "golan (bad boy)-borcan (jar)". This type of rhyme has been labeled **perfect rhyme**.

In addition to it, there are other forms of rhyme based on word similarities (Bower; Bolton,1969; Gavrilă, Doboş, 2003):

- **Syllabic rhyme** – the last syllable of one word is identical to the last syllable of another word, although the two syllables do not contain a stressed vowel; e.g. "future (butterfly)-nasture (button)".

- **Imperfect rhyme** – based on a stressed sound sequence and an unstressed one; e.g. "nas (nose)-compas (compass)-baipas (by-pass)";

- **Weak rhyme** – established between two or more unstressed syllables; e.g. "catalog (catalogue)-omolog (correspondent)", "înaripat (with wings)-împăiat (stuffed)".

- **Semirhyme** – based on two words, one of which contains more syllables than the other; e.g. "avalanşă (avalanche)-etanşă (sealed)-naşă (godmother)".

- **Forced or oblique rhyme** – found in words that do not have common sound pairs; e.g. "până (to)-sunt (are)"; "lângă (next to)-pilă (file)".
- **Assonance** – vowel-based; e.g. "**a**pa (water)-**a**lunecă (slide)-**a**lene (maunder)".
- **Alliteration** – formed through the repetition of the initial consonant; e.g. "**tat**a (father)-**t**aie (cuts)-**t**are (powerful)".
- **Partial rhyme** – established between words with common final consonants; e.g. "bu**n** (good)-ali**n (**comfor**)**-ciorchi**n** (cluster)".
- **Pararhyme** – formed when all consonants in words are identical; e.g. "masă (table)-mese (tables)"; "spune (tells)-spini (thorns)".
- **Hyper-rhyme** – appears when the words have in common the sound sequence containing the last stressed vowel. This type is weaker than the perfect rhyme and has lower stylistic value; e.g. "golan (bad boy)-molan (it is a pseudo-word in Romanian language, it doesn't mean anything)", "fecior (boy)-picior (leg)".

3. The process of assessing phonological skills pertaining to rhyme

3.1. Objectives

- elaborating probes for assessing rhyming abilities in Romanian language;
- assessing rhyming abilities in a Pierre-Robin syndrome case;
- underlining rhyming abilities as predictors for phonological abilities.

3.2. Hypothesis

- assessing rhyming abilities can ensure an adequate perspective over phonological abilities.

3.3. Participants in the research

This research is based on a Pierre-Robin syndrome case. The selection criterion was just the diagnosis. Pierre-Robin syndrome is characterized through pronunciation and voice disorders based on labial-maxilla-palatal-cleft, but also through hearing impairment and learning difficulties (Davidson et. al, 2012; Jidveianu, 2009; Juarez-Villegas, 2010; Pather, 2009; Redett, 2008). Starting from these features, the case ensures us the possibility of reaching the proposed objectives and testing the above formulated hypothesis.

3.4. Procedural aspects

This chapter focuses on the development of the ability to perceive sound correspondences in word endings, as well as in lyrics forming a stanza.
The activities that help reaching the above-mentioned objectives include:
- exposure to rhyming structures;
- assessing whether word pairs rhyme or not;
- producing rhyme (providing words with the same sound endings).

An important aspect of this research is that the probes used for assessing rhyming abilities are elaborated based on the developmental features of the child participant in the research.

3. 5. Obtained results

3.5.1. Rhyme recognition

The process of assessing phonological skills pertaining to rhyme began through a task centred on circling word pairs that rhymed. Five out of the twenty word pairs included on worksheet did not rhyme at all, whereas two had forced or oblique rhyme. One must underline here the fact that the sheet contains all the types of rhyme mentioned in the theoretical section. The translation of all the figures can be found in the papers` annexes section.

Fig. 1. Sheet for the identification of rhyming word pairs

The child has managed to identify correctly 10 rhyming word pairs. We have not identified any erroneous marking of rhyme. Nonetheless, he did not notice the following rhyme categories:
- perfect rhyme in the word pair "mare (big)-care (who)";

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- assonance in the word pair "apa (water)-alunecă (slice)";
- forced rhyme in the word pairs "lângă (next to)-pilă (file)", "până (to)-sunt (are)";
- pararhyme or alliteration in the word pair "masă (table)-mese (tables)".

The child's working style is based on a visual comparison of the lexical items presented for phonological analysis. The auditory perception analysis of the target items presents doubts and uncertainties. The errors he has made were caused by the auditory perception decision-making style he has applied.

In order to verify the predominantly visual decision-making style, an additional task was provided. It implied establishing whether two words rhymed or not by indicating the constituent sounds that formed the rhyme.

2. Judecăți asupra rimelor:		
cling	clong	A-F
alune	tăciune	A-F
Maria	Anania	A-F
dulap	dovleac	A-F
sare	crude	A-F
antreu	saleu	A-F
tirbușon	tomberon	A-F
pustiu	nor	A-F
candidat	cantonat	A-F
plăcinte	cuminte	A-F
tractor	avion	A-F

Fig. 2. Sheet for identifying the word parts that generate rhyme.

With this task, the child did not make any mistakes in analysing the 11 items provided, as the explorations of the word pairs was based exclusively on visual perception. The above illustration underlines the fact that the rhyme type has a smaller weight in correctly assessing rhyming word pairs, as the child has successfully identified the phonological sequences that formed rhyme Moreover, he easily delimited both the initial and the final sequences in words, regardless of whether they contained mono-member or pluri-member vowels, or consonants.

In the case of the "Maria-Anania" word pair, the child hesitated when asked to establish whether the two words rhymed or not and decided that they randomly rhyme, without being able however to identify the sound sequence that created the rhyme. The child actually mentioned verbally that the two words appeared to rhyme only partially. In the case of the intriguing above-mentioned pair, the fact that it is formed of proper nouns has contributed to the observed hesitation.

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One must also mention that the child has solved the task quietly, verbalizing only upon request and relying exclusively on a visual analysis of the words. In this situation, he has not attempted to decodify and comprehend the read words, thus making only a superficial exploration. Assessing the word pairs from a sound perspective was not influenced by the semantic content of the target items, which enables us to put forward the hypothesis that **the difficulties in learning reading and writing are centred in the case of this child on the lexical level, with further implications on the phonetical and phonological level.**

In order to verify this hypothesis, we have devised another exercise. The child received the task to identify the word that did not rhyme with the others in a series of five items.

3. Stabileşte cine nu rimează:

foc	loc	joc	vulpe	doc
tac	fac	deloc	nac	buiac
sus	uns	pătruns	nară	ras
cuminte	bunic	părinte	plăcinte	aminte
talpă	bondar	iapă	saltă	arată

Fig. 3. Exercise for identifying the word that does not rhyme in a series of items.

In the case of this task, the child has succeeded in identifying correctly only two out of the five words. His chosen work strategy is exclusively based on visual exploration as well. Consequently, when the number of analyzed items grows, the non-rhyming word selection from a series is made randomly.

This type of task also underlines the fact that working memory has a limited span, as the child could not remember a greater number of items submitted for comparison. This becomes all the more difficult as he did not verbalized the words he read to himself quietly and did not make use of comparison strategies based on auditory perception skills.

3.5.2. Rhyme generation

Another task designed to assess the phonological processing skills through rhymes consisted of generating rhymes on the basis of two-word series.

At this stage, we noticed the difficulty with which the child approached the task, the numerous attempts made, the increased latency in providing answers, as well as the insecurity with which he performed the task.

The fact that he managed to find only one or two rhyming words, while providing others that were completely inappropriate, also stood out.

Gernerare de rime pornind de la un cuvânt:

casă	masă			
		scaun	picior	
pun	bun	răpun	adun	Andrei
pat	bat			
sar	rar			
bine	sine			
cal	mal			
rana	pana			
lin	pin			
		spin	spun	
tare	sare			
		mare	raspuns	

Fig. 4. Rhyme generation exercise.

The first word series caused confusion between rhyming words and items belonging to the same lexical field, a fact that proves poor mnemonic abilities and limited semantic processing skills. This provides a justification for the hypothesis stating that the lexical deficit is responsible for the learning problems present.

The increased level of difficulty of the task became obvious when the child refused to solve all the series provided.

Conclusions

The data collected in this research were corroborated with data collected by implementing different other strategies in assessing phonological (words segmentation, sounds deletions, syllables deletions, writing and reading phonological complex words) and lexical abilities (defining words, completing lexical paradigms by enumerating constituents lexical items, elaborating sentences, elaborating short thematic texts, writing and reading different words and texts, answering questions based on a previously read text). The data collected by implementing these other strategies were gathered in two different papers being in press (Anca, Haţegan, Talaş, 2012). By overlapping the data we can consider that the investigation approach design based on the above mention hypothesis is a correct one, rhyming abilities can be consider a good predictor for phonological abilities development in the context of learning difficulties and in the context of a Pierre-Robin case. These results will be further analyzed in a complex research, aimed for standardizing an assessing procedure for phonological abilities stressing on rhyming abilities.

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Annexes

1. Încercuieşte perechile de cuvinte care rimează (Circles the rhyming pair of words)

mare-care	big-who
golan-borcan	bad boy-jar
pare-nimic	seems-nothing
fluture-nasture	butterfly-button
nas-compas	nose-compass
bine-copil	good-child
înaripat-împăiat	with wings-stuffed
calculator-internet	computer-internet
avalanşă-etanşă	avalanche-sealed
lângă-pilă	next to-file
până-sunt	to-are
apa-**a**lunecă	water-slide
ta**t**a-**t**aie	father-cuts
cană-pahar	cup-glass
ali**n**-ciorchi**n**	comfor-cluster
masă-mese	table-tables
spune-spini	tells-thorns
golan-molan	bad boy-molan (this a pseudoword in romanian language, it doesn`t mean anything)
ficior-picior	boy-leg
pantof-cuţit	shoe-knife

Annexe. 1 Translation of fig. 1.

2. Judecăţi asupra rimelor (Judging upon rhymes)

Cling (Romanian onomatopoeia for describing the sound of the bells)	Clong (Romanian onomatopoeia for describing the sound of the bells)	A-F (True-False)
Alune (nuts)	Tăciune (smut)	A-F (True-False)
Maria (proper name)	Anania (Proper name)	A-F (True-False)
Dulap (locker)	Dovleac (pumpkin)	A-F (True-False)
Sare (salt)	Crude (mean)	A-F (True-False)
Antreu (entree)	Saleu (cookie)	A-F (True-False)
Tirbuşon (opener)	Tomberon (garbage box)	A-F (True-False)
Pustiu (empty)	Nor (cloud)	A-F (True-False)
Candidat (candidate)	Cantonat (fixed)	A-F (True-False)
Plăcinte (pies)	Cuminte (good)	A-F (True-False)
Tractor (tractor)	Avion (plane)	A-F (True-False)

Annexe. 2 Translation of fig. 2.

3. Stabileşte cine nu rimează
(Identify the nonrhyming word from the serie)

Foc (fire)	Loc (place)	Joc (game)	Vulpe (fox)	Doc (a pseudo-word in Romanian language)
Tac (keep quiet)	Fac (do)	Deloc (anything at all)	Nac (a pseudo-word in Romanian language)	Buiac (lofty)
Sus (up)	Uns (anointed)	Pătruns (penetrated)	Nară (nostrils)	Ras (shaved)
Cuminte (good)	Bunic (grandfather)	Părinte (parent)	Plăcinte (pies)	Aminte (aware)
Talpă (leg)	Bondar (bumblebee)	Iapă (mare)	Saltă (push)	Arată (show)

Annexe. 3 Translation of fig. 3

4. Generare de rime pornind de la un cuvânt
(Generating rhyming words starting from a given word)

Casă (house)	Masă (table)	Scaun (chair)	Picior (leg)	
Pun (put)	Bun (Good)	Sapun (soap)	Adun (gather)	Andrei (proper name)
Pat (bed)	Bat (Beat)			
Sar (jump)	Rar (rare)			
Bine (well)	Sine (himself)			
Cal (horse)	Mal (shore)			
Rana (injury)	Pana (feather)			
Lin (slow)	Pin (pine)	Spin (thorn)	Spun (tell)	
Tare (powerful)	Sare (jump)	Mare (big)	Raspund (answer)	

Annexe. 4 Translation of fig. 4