

Assessment of narrative skills in preschool children

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Received 28 September 2012

Accepted 13 January 2013

The Egyptian Journal of Otolaryngology
2013, 29:130–135

Background

Narrative skills are a form of discourse that describes real or fictional events. In recent years, the study of communicative competence has extended to examining longer discourse units, including narratives in many languages. Unfortunately, few studies have been carried out to assess narrative skills in Arabic-speaking children.

Objective

The aim of this study was to design an assessment protocol for narrative skills in Arabic-speaking children in order to reach a better understanding of their developmental pattern.

Participants and methods

The study was carried out on 60 Arabic-speaking normal Egyptian children aged between 2 and 6 years. The children were divided into four groups according to their age. An assessment tool was designed to assess their narrative skills on three aspects, namely, story structure, language structure, and narrative productivity.

Results

The results revealed significant differences between the groups in all studied aspects. Narrative skills were found to develop with age. However, the age at which narrative skills are acquired varies from one skill to the other.

Conclusion

Children start to acquire narrative skills at the age of 2 years and these skills become well developed around the age of 6. Some narrative skills are acquired at an earlier age compared with others.

Keywords:

narrative assessment battery, narrative development, narrative skills

Egypt J Otolaryngol 29:130–135
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1012-5574

Introduction

In recent years, the study of communicative competence has extended to examining longer discourse units, including narratives. Narrative skills, by definition, refer to one's production of a fictional or real experience that is temporally sequenced [1]. The study of narrative abilities provides valuable information on the linguistic, cognitive, and social development of children with typical language development [2].

Narratives can be organized on macrostructural (global) and microstructural (local) levels. Macrostructure refers to the overall content and organization of a narrative [3], whereas microstructure is concerned with the internal linguistic structures (e.g. embedded clauses, conjunctions, and noun phrases) that are used in narrative construction [4].

Narrative skills begin to develop during preschool years and continue to be refined throughout childhood and school age [5]. Unfortunately, there are few standardized approaches available for assessing language skills in preschool-aged children within a narrative context. This presents an important limitation to current language assessment practices [1].

The aim of this study was to design an assessment protocol for narrative skills in Arabic-speaking children in order to reach a better understanding of their developmental pattern.

Participants and methods

This study was carried out on 60 typically developing Egyptian children whose ages ranged from 2 years to 5 years and 11 months. The sample included 29 boys and 31 girls. They were divided according to their age into four groups:

- (1) Group A: 2 years to 2 years and 11 months.
- (2) Group B: 3 years to 3 years and 11 months.
- (3) Group C: 4 years to 4 years and 11 months.
- (4) Group D: 5 years to 5 years and 11 months.

The children were selected from among the relatives of patients attending the Phoniatic Unit at Kasr Al Aini Hospital. The study was carried out between June 2011 and June 2012.

Exclusion criteria

- (1) Absence or past history of hearing impairment.
- (2) Absence or past history of psychological disorders.

- (3) Absence or past history of neurological disorders.
- (4) Absence or past history of language or speech problems.

Methods

Children were subjected to the Protocol of Language Assessment at the Phoniatric Unit of the outpatient clinic at Al Kasr Al Aini Hospital, which includes the following:

- (1) Elementary diagnostic procedures:
 - (a) Patient interview and history taking.
 - (b) General and neurological examination.
 - (c) Auditory perceptual assessment of the child's language and speech.
- (2) Clinical diagnostic procedures:
 - (a) Standardized Arabic language test [6].
 - (b) Articulation test [7].
 - (c) Audiological evaluation: pure tone audiometry or auditory brain stem response was used if confirmation of normal peripheral hearing was required.
 - (d) Finally, the protocol for assessment of narrative skills designed in the current study was applied.

Designing the battery

The narrative task used in this assessment was story retelling of a wordless picture story that was specially designed for the current study. The goal in designing this story was to assess the macrostructure and microstructure; therefore, different syntactic categories had to be taken into consideration while designing it. The story was visually aided by pictures depicting the sequential events in the story.

A digital voice recorder was used to record the narrative sample obtained from each child. Data were then analyzed, and the scoring sheet was filled accordingly.

A pilot study on eight children (two in each age group) was carried out before the study in order to apply the story and modify the scoring sheet according to the responses of the children. Children included in the pilot study were not included later in the study.

Eliciting a narrative from the child

Each child was asked to listen attentively to the story being read by the assessor. Each child was then asked to retell the story. The narrative sample obtained from each child was audio recorded and analyzed. The scoring sheet was then filled in accordingly.

The scoring sheet covered three aspects of pragmatics (Appendix):

- (1) Story structure:
 - (a) This item covers the ability of the child to introduce a topic, sequence the events of the story in a logical manner, and provide an appropriate coda. It also includes the ability of the child to be specific and use connectives and references for clarity. Scoring was coded for the

presence or absence of each feature. One point was given for mentioning an item and zero for its absence. All the subtotals were summed to give the total score for story structure.

- (2) Language structure:
 - (a) This item covers phrasal structure (adjectival, prepositional, and negative phrase), sentence structure (simple, compound, and complex sentence), noun phrase (regular, irregular, plural, duals, and possessive), and verb phrase (present, past, and future). Scoring was coded for each item individually:
 - (i) Phrasal structure: each type was scored separately; scores were coded for the phrase structures regardless the rest of the sentence. One point was given for its presence and none for its absence.
 - (ii) Sentence structure: one point was given for the use of a compound sentence by the child and another point for using a complex sentence.
 - (iii) Noun phrase: one point was given for mentioning each item (regular and irregular pluralized nouns, duals, and possessive forms) and no points given for wrong or no mentioning.
 - (iv) Verb tense: one point was given for the proper use of each of the three verb tenses (present, past, and future) separately and no point was allotted for incorrect use.
- (3) Narrative productivity:
 - (a) Narrative productivity was assessed by calculating the following:
 - (v) Total number of words.
 - (vi) Mean length of utterance (MLU): the number of words in the five longest utterances was counted separately for each. The average number of words in these utterances was then calculated.
 - (vii) Type token ratio (TTR): calculated by counting the number of different words only (any repeated word was not counted) in ratio to the total number of words uttered by the child.

The total narrative productivity score was derived by summing the MLU, TTR, and the total number of words.

Statistical methods

Data were analyzed using SPSS win statistical package version 17 (SPSS Inc., Chicago, Illinois, USA). Numerical data were expressed as mean and SD. Comparison between more than two groups was carried out using the Kruskal–Wallis test (nonparametric analysis of variance). A *P*-value less than 0.05 was considered significant and that more than 0.05 was considered nonsignificant.

Results

The results of this study demonstrated a highly significant difference among the four age groups in the

total narrative score and its subtotal scores – story structure score, language structure score, and narrative productivity score (Table 1).

Highly significant differences were found among the four age groups in all components of the story structure: story frame, events, connectives, references, and specificity (Table 2); in all components of the language structure: noun forms, verb tense, phrase structure, and sentence structure (Table 3); and in all the components of the narrative productivity: total number of words, MLU, and TTR (Table 4).

Comparison of the total narrative score and its three subtotal scores between boys and girls in the whole study group revealed that there was no significant difference (Table 5).

Discussion

The development of a child's narrative ability provides insight into the development of the different linguistic elements that are required to tell a story. Children have to coordinate phonological, lexical, syntactic, and pragmatic elements into well-formed sentences to produce a narrative [5].

Although most studies assessed narrative skills in children aged 3 years, the present study included children as young as 2 in order to study the emergence of narrative development. Lever and Senechal [8] reported that the ability to narrate undergoes extensive development between the ages of 2 and 5. A story retelling task rather than a story production task was used for the assessment. During the retelling task, it was observed that most

children were able to capture the most important structural elements from the presented script and were able to recall them back to the examiner. Our findings are in agreement to those of Rosemary and Monique [8], who reported that during the retelling task, children narrated a more logically structured and linguistically complex story than when they were asked to produce a novel story.

In our study, each child was evaluated on three aspects: story structure, language structure, and narrative productivity.

Story structure (story frame, events, connectives, reference use, and specificity)

In the present study, we found that the earliest development in the story frame was setting the action using simple verbs (starting at the age of 2 years and reaching its peak development at the age of 3). However, older children were able to produce a proper story frame by providing a topic and introduction and finding out the main problem and its solution. Our results are in accordance with those of several studies [9–11].

In our study, it was clear that younger children missed out events while plotting their stories in comparison with older children who were able to mention all the story events; these data might reflect the fact that describing complicated story events requires the use of more complex verbs, a skill that is not developed at younger ages. Our findings are in accordance with those of Fecica and O'Neill [12].

As regards the use of the connectives, it was noticed that at the age of 2 years, children did not use connectives. At the ages of 3 and 4 years, there was a significant increase in the use of independent connectives; however,

Table 1 Comparison of the total narrative score and total scores of its three components between the four age groups

Group	A		B		C		D		P-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Story structure	10	2.3	20.1	2.8	23.1	2.6	27.6	2.0	<0.001
Language structure	4.6	2.2	8.4	2.4	12.6	0.9	14.4	1.3	<0.001
Narrative productivity	32.05	5.93	54.60	12.72	73.12	8.5	96.57	7.47	<0.001
Total narrative score	64.62	9.95	83.17	16.48	108.84	9.31	138.57	8.57	<0.001

Group A, 2 years–2 years and 11 months; group B, 3 years–3 years and 11 months; group C, 4 years–4 years and 11 months; group D, 5 years–5 years and 11 months.

Table 2 Comparison of the components of story structure between the four age groups

Group	A		B		C		D		P-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Story frame	1.5	0.8	3.9	1.4	5.1	1.4	7.3	1.0	<0.001
Events	8.1	1.5	14.1	0.8	14.9	0.4	15	0.0	<0.001
Connectivity	0	0	0.4	0.5	1.1	0.5	1.6	0.5	<0.001
Reference	0	0	0.4	0.7	0.5	0.7	1.6	0.5	<0.001
Specificity	0.4	0.6	1.4	0.5	1.6	0.5	2.1	0.8	<0.001

Group A, 2 years–2 years and 11 months; group B, 3 years–3 years and 11 months; group C, 4 years–4 years and 11 months; group D, 5 years–5 years and 11 months.

Table 3 Comparison of the components of language structure between the four age groups

Group	A		B		C		D		P-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Noun forms	1.1	0.9	2	0.9	3.4	0.5	3.7	0.6	<0.001
Verb tense	1.4	0.5	1.6	0.6	2.1	0.5	2.4	0.5	<0.004
Phrase structure	1.4	0.8	2.3	1.0	4.1	0.7	4.5	0.7	<0.001
Sentence structure	0.7	1.0	2.6	0.9	3.1	0.3	3.8	0.4	<0.001

Group A, 2 years–2 years and 11 months; group B, 3 years–3 years and 11 months; group C, 4 years–4 years and 11 months; group D, 5 years–5 years and 11 months.

Table 4 Comparison of the components of narrative productivity between the four age groups

Group	A		B		C		D		P-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Words	28.6	5.4	49.3	11.7	65.9	8.1	87.4	6.8	<0.001
MLU	2.6	0.6	4.6	1.2	6.5	0.9	8.5	1.1	<0.001
TTR	0.82	0.006	0.76	0.07	0.72	0.04	0.66	0.06	<0.001

Group A, 2 years–2 years and 11 months; group B, 3 years–3 years and 11 months; group C, 4 years–4 years and 11 months; group D, 5 years–5 years and 11 months.

MLU, mean length of utterance; TTR, type token ratio.

Table 5 Comparison of the total narrative score and its three subtotal scores between boys and girls of the entire study group

Group	Boys		Girls		P-value	Significance
	Mean	SD	Mean	SD		
Story structure	19.7	6.8	20.7	7.2	0.460	NS
Language structure	9.5	4.5	10.5	4.0	0.473	NS
Narrative productivity	61.81	26.03	66.36	25.28	0.572	NS
Total narrative score	91.06	36.29	97.54	35.85	0.502	NS

at the age of 5, there was an unexpected significant decrease in the use of independent connectives. This finding could be attributed to the marked increase in the use of dependent connectives by older children who depend mostly on the use of higher quality cohesives to form more complex sentences. Similar findings have been reported by other studies [8,10].

As regards reference use, there was a significant increase in the use of references among the four age groups. This finding might reflect that young children have difficulty with some grammar rules as in using reference. Some children assumed shared knowledge with the listener and introduced characters in their narratives as he or she.

We found an overall increase in the specificity across the age groups under study. This was evident from the increase in the scores of the physical state, reaching its peak at the age of 4 years, and the emotional state, continuing to develop beyond the age of 6 years. Reuterskiold *et al.* [5] reported that at the age of 2 years and 6 months children know a great deal about human intentionality, whereas at the age of 3, children tell stories about real-life events with emotional content.

Language structure

In the current study, there was a significant increase with age as regards the different areas of the language structure (noun forms, verb tense, and phrase structure).

As regards the use of noun forms, it was observed that younger children were more proficient in using irregular plurals than regular plurals. An explanation could be that the example for irregular plurals provided in this story was relatively easy, as the children were constantly exposed to it during their everyday language use.

In the present study, there was evident use of present tense among the younger age groups. This finding might reflect that the younger age groups treated the pictures in the wordless picture book as separate units rather than a series of events. Emergence of the use of past and future tense was observed among the older groups. Results for the language structure highlight that older children exhibit more syntactic complexity. Similar results have been reported by Botting [13] and Curen-ton and Justice [14].

Narrative productivity

In the current study, the MLU showed a hierarchical increase across the different age groups. These findings are consistent with those of other researches [13,15]. However, this was not the case for TTR. A possible explanation might be the repetitive use of the same words as in the case of connectors, or starting each event by referring to the characters name, which decreased the diversity in the vocabulary used and thus lowered the scores for the number of different words used by the children.

As regards the sex-based difference, the current study did not reveal differences between boys and girls in terms of narrative skills. These results are consistent with those of Chapman [16] but do not agree with those of Youko [11], who stated that there was a gender effect – boys started with and maintained higher narrative scores compared with girls.

Trends in the mean data might reflect that development of narrative skills increased with increasing age. It might be possible that younger children do not possess all cognitive and linguistic elements that are essential to organize the narrative structure. Other researchers have reported similar results [5,17].

Recommendations

- (1) Application of the designed assessment to a larger group of children is needed to form a bigger base of normative data.
- (2) Identifying various areas of impairment in children's narrative abilities should be taken into consideration while designing an interventional therapeutic program.
- (3) Further studies should be carried out by collecting various narrative samples using different elicitation procedures in order to compare the performance of

children in different narrative genres (e.g. narrative generation versus retelling).

- (4) Future studies comparing narrative skills of children with language impairment with that of their normally developing peers are needed.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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Appendix

Table A1 Narrative checklist

Story structure	Yes	No
Story frame features		
Topic		
Name of the story		
Introduction		
Orientation		
Setting the narrative by introducing the characters, settings, and time		
Characters		
Action		
Setting		
Time		
Problem		
Resolution		
Mention the remedial actions taken to deal with the problem in the story		
Note: A resolution can only be credited if the problem has been mentioned explicitly		
Coda		
Conventional story closing		
Total story structure features		
Events		
Total number of events is 15 (score is given according to the number of relevant events mentioned in the story)		
Total events scores		
Specificity	Yes	No
Intensifiers		
Reference to physical states		
References to emotional states		
Total specificity scores		
Connectives		
	Score	
No connectives (score 0)		
Independent connectives (score 1)		
Dependent connectives (score 2)		
Total connectivity scores		
Reference clarity		
First mention of story characters		
No first mention (score 0)		
Presupposed reference without using definite article + noun (score 1)		

Nonpresupposing introduction using definite articles + noun (score 2)		
Total reference clarity score		
Total story structure score		
Language structure		
Sentence structure		
	Yes	No
Compound sentence		
Complex sentences		
Total sentence structure score		
Phrasal structure		
	Yes	No
Conjoined noun phrase		
Adverbial phrase		
Prepositional phrase		
Compound verb phrase		
Adjectival phrase		
Negative sentences		
Interrogative sentences		
Total phrasal structure		
Noun forms		
	Yes	No
Regular pluralized nouns		
Irregular pluralized nouns		
Duals		
Possessive forms		
Total noun forms score		
Verb tense		
Accurate use of present tense		
Accurate use of past tense		
Proper use of future tense		
Total verb tense score		
Total language features score		
Narrative productivity		
Total number of words		
Mean length of utterance		
Type token ratio		
Total narrative productivity score		
Total narrative score		
