The Emergence of Narrative Discourse in Two Young Deaf Children

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Children go from making free associations to making "frog leaps" and, finally, to creating sequences before they can produce real narrative discourse (at approximately the age of six or seven). A well-formed narrative can be described with "story grammar," consisting of at least one complete episode containing an event that triggers some action, the action itself, and at least one consequence.

In this particular study, we will look at the acquisition of narrative discourse among young deaf children who communicate in Quebec Sign Language (langue des signes québécoise, or LSQ) and will compare their development to the results found in the literature. We will start with a review of the available literature on the subject of narrative discourse acquisition in hearing children and in deaf children. To our knowledge, no data are available on the development of narrative schemas in deaf children of preschool age.

LITERATURE REVIEW

The review of the literature is divided into two parts. We first discuss the development of narrative discourse abilities in hearing children, then turn to similar studies of deaf children.

The Hearing Child's Development of Narrative Discourse

Narrative discourse abilities in children have been the subject of many publications. The following sections present a brief survey of the development of narrative discourse abilities in hearing children, as it emerges from these numerous studies. The survey is summarized in table 1.

Table 1.   The hearing child's narrative discourse development

Age	Researcher and Finding			
	Applebee (1978)	Sutton-Smith (1975)	McKeough (1984, 1987)	Peterson (1990)
2 years	Lack of relation between events	Free associations (description of actions without links)		
3 years	Sequences stage (activities without temporal planning)	Conservation of the main character		
4 years	Prenarrative (presence of a central element) Logical relations (cause and effect)		Presence of narrative schemas Temporal and causal links Problems receive no solutions	Temporal reference Spatial localization
5 years	Thematic chain True central character related to a sequence of events Logical temporal links	Conservation of action		
6 years			Problem immediately resolved Juxtaposition of events	

Two Years Old

Sutton-Smith (1975) describes the narrative discourse of the two-year-old hearing child as the stage of free associations. Stories do not hold a central theme and include no sequential organization. The child simply describes actions and characters and makes no attempt to link sentences together. Applebee (1978) talks about discourse elements without any links between them. This stage is best characterized by a lack of a relation between events.

Three Years Old

Sutton-Smith (1975) describes a second stage of development in which the main character of a narrative is present from the beginning to the end of a story. The characters are egocentric, and the child always arranges objects in relation to himself or herself. According to Sutton-Smith, relating objects to one another rather than to the child himself or herself is part of

the third stage of development. Applebee (1978) also talks about a second stage at approximately the age of three years and calls it the "sequence" stage. During this stage, the elements of the story have a macrostructure that revolve around a central element and that are described without any temporal planning.

Four Years Old

Applebee (1978) describes the third stage of narrative development as "prenarrative." At this stage, a character, an object, or an event constitutes the central element, and the story is built by adding attributes to it. The child also begins to use inferences. The fourth stage begins at approximately four and one-half years of age and is characterized by nonthematic chains. Events are linked to one another but lack a central theme. Logical relationships between elements (cause and effect) and temporal relationships between events can be found in the child's narrative.

McKeough (1987) makes a structural analysis of the actions in the story, which resembles the episode analysis done by Stein and Glenn (1979). This structural analysis brings out the fact that, at the age of four years, children generate event sequences or episodes in which four elements interact: a setup, an event trigger, an answer, and an end. McKeough also explains that children in this age group generate more than one event in relation to the problem but are not able to resolve the problem. McKeough (1984) informs us that four year olds are capable of making temporal and causal links in events and are able to combine them to form episodes.

In a longitudinal study, Peterson (1990) looked at the storytelling capabilities of young children as they pertained to the reference to characters, the time line, and the use of spatial location. The subjects were one year old at onset of the study and four years old at the end. Peterson noticed that, at approximately the age of two, the children often left out important characters in the story. In the initial data, references to time were virtually absent whereas, in the last data collected, the number of these references had considerably increased. Spatial localization is not a necessary element in storytelling, and information concerning it started appearing at approximately the age of two years, the quantity of which increased with age.

Five Years Old

Applebee (1978) reveals that five year olds' stories are characterized by a thematic chain. A true central character appears and is related to a sequence of events. Temporal links are logical. The character's qualities can be far removed from the conclusion of the story. Sometimes, the end of the story is not a logical conclusion in relation to its beginning.

Sutton-Smith proposes a fourth stage of development that emerges at approximately the age of five and six years and calls it "conservation of

action." In this stage, the child continues to develop the interaction between the objects and the characters in the story.

Six Years Old

McKeough (1984) observed that children in this age group produce stories by introducing a problem, a goal, or a desire that becomes the trigger to a chain of events. This chain of events then finds itself in a context of problem solving. Generally, at this age, stories are mainly composed of two episodes. In the first episode, the problem presented is immediately resolved, and the second episode resembles the stage of the four year old where a simple juxtapositioning of events is presented. Real stories emerge at the age of six when two event sequences can be coordinated.

The Deaf Child's Development of Narrative Discourse

The narrative discourse of deaf children has also been studied. Griffith and Ripich (1988), for example, asked deaf children to retell stories, with and without images, in speech and in ASL. They found that the deaf children were able to use story grammar. Marschark, Mouradian, and Halas (1994) compared written and signed stories of deaf children who were five and seven years old and noticed that both the written and signed versions of the story had the same episode structure.

OUR OWN RESEARCH

In our study, we compared the narrative competence of two children. One child was studied at two different points in time, and the other child was studied at three different points in time. We analyzed the quantity and the quality of information in each part of the story as well as the evolution of the degree of autonomy with which the children were able to tell the story without intervention by the deaf adult. We also examined the use of connectives. Finally, we verified whether a correspondence exists between the progressive mastery of narrative schema and development in the use of space to express grammatical relations. To make this verification, we examined locus assignment and spatial reference for nominals as well as verb agreement and the use of classifier verbs.

The Children

Our subjects were two profoundly deaf sons of hearing parents. The parents attended LSQ courses, and they used signs with their children as much as they could. At the beginning of the video recording, in March 1996, the children were 4 years and 10 months and 4 years and 11 months old. The

second video recording took place in June 1997. We also used a third video recording, made in March 1998, of one of the children. From September 1996 through the end of the study, the two children attended The Gadbois School in Montreal, which is a school for nonoralist children. Before entering school, they had been seen by speech pathologists and audiologists at the Institut Raymond-Dewar, and they had taken part in discovery activities six hours a week with deaf adults and other deaf children at the institute for two years preceding their attendance at school.

Data Collection

Hedberg and colleagues (1989) criticize traditional methods of collecting data from children by way of storytelling. They question the use of pictures, dolls, and toys as a means to elicit stories that are truly representative of children's narrative skills because these stimuli may bias the child's production. On the one hand, when the stimuli are presented with very little context, the children do not make temporal or causal relations with the elements of the story. On the other hand, the use of picture cards affects their storytelling, inducing "frog leaps" as described by Applebee (1978). To avoid these problems, we used a cartoon as stimulus even though we were aware that this kind of stimulus does not promote stories representing the internal narrative schemas of the children because the cartoon provides an external support for their storytelling.

The Story

The video cartoon was about Felix the Cat and was approximately five minutes long. This particular story was chosen because the pictures alone were good enough to understand the story. The story was constructed according to a classic narrative schema (Fayol 1985b; Godard 1991), including orientation, episodes (trigger, actions, consequences), and an end. Approximately one year elapsed between each data collection. Our belief was that, between the data collections, children would have forgotten the details of the story. Therefore, we used the same video for each data collection.

Procedure

Each child was seen individually. First, the children were asked to watch the story on television. Then, a deaf adult who was known to the children met with them in another room. She asked them to tell her the story they had just seen because she hadn't had the time to watch it. Another deaf person videotaped the situation. One camera was trained on the child and

another one on the child and the adult. The deaf adult helped the child produce a story by asking him questions. Following McCabe (1992), our goal was to elicit an elaborate language production from the children. Thus, we had to create a real connection with the young children, which was done by having the deaf adult ask them questions.

Transcription

The videos were transcribed by deaf collaborators. Glosses were used because the goal of this research was mainly to examine the narrative skills of the children. The transcriptions contained the necessary information to pick out directional verbs, located verbs, and indexical references. To compare the children's productions with an adult's production, two deaf people were videotaped telling the same story. This corpus was also transcribed.

DATA ANALYSIS

This section is divided into five parts. We first discuss the amount of information present in the stories. Second, we turn to an analysis of episode structure. We then focus on the information provided in the orientation section of the story, examine the use of connectors, and then discuss the children's ability to use space in the establishment of reference in sign language.

Quantity of Information

To quantify the information, we counted the total number of predicates used by each child. Because the amount of information depended greatly on the number of questions that were asked by the deaf adult, the results were presented both in absolute numbers and in the average quantity of information in relation to the questions asked. The results can be seen in table 2.

Table 2 shows an increase between 1996 and 1997 in the average number of predicates that were used by each child. But clearly, without the questions from the deaf adult, the children would spontaneously produce very little narrative. As can be deduced from the list of questions asked by the

Table 2. Average number of predicates used in relation to the number of stimulus questions asked

Year	Child C	Age	Child D	Age
1996	27/20 = 1.35	4;10	13/13 = 1.00	4;11
1997	42/24 = 1.75	6;1	28/25 = 1.52	6;2
1998	61/7 = 8.70	6;9	—	—

Note: The semicolon is used to separate participants' age in year and months (for example, 4;10 = 4 years, 10 months).

deaf adult, a chain of events has to be suggested to the child (e.g., What does the pirate do then? What does the duck do? Does he stay there or does he run away? Does the cat find the duck? Where does the boat go?).

The situation was very different in 1998. The deaf adult asked only seven questions. The first question was asked to set up the storytelling (e.g., What did you see in the story about the cat and the duck?). The second question came after the presentation and the trigger event (e.g., Afterwards?). These two questions seemed to show only that the speaker is interested in the story. The three other questions were about the identity of the characters or about what they do (e.g., Who goes up? Who falls? Falls on what?). In the 1998 recording, child C was almost autonomous in his ability to tell the story.

Episode Structure Analysis

The type of analysis depends partly on the type of story told by the child. If the story is not a true narrative, then applying the classic narrative schema that we referred to earlier is difficult. Hence, for young children, the stages described by Applebee (1978) and Sutton-Smith (1975, 1986) served as references. For real narration, as described by these authors, an analytical grid that is based on the narrative grammar of Stein and Glenn (1979) serves as a guide. However, because of Godard's (1991) and Fayol's (1985a, 1985b) reviews pointing out the arbitrary nature of the categorization that this grid imposes on certain utterances, we grouped certain elements as shown in table 3.

According to McKeough (1987), children are able to produce complete episodes at approximately the age of four. We wanted to see if the same is true for deaf children. Table 4 shows these data.

The episode structure analysis allows us to see the children's evolution over time. During the first data collection, child C produced only action sequences: We were unable to grasp a story structure. This type of narrative resembles closely what Sutton-Smith (1975) has described for two-year-old children. Data collected from child D's first narrative are coordinated around a central character, which is what Applebee (1978) found for two years olds.

Table 3. Narrative schema used in the study

Category	Definition
1. Presentation (context)	Description of the characters and the story
2. Event trigger	Events that influence the action
3. Action	Action that allows the character to attain the goal
4. Direct consequence	Success or failure to attain the goal

Table 4. Presence and number of complete episodes in the stories

Year	Child C	Child D
1996	None, story not long enough to have an episode structure	None, simple sentences without apparent story structure
1997	One complete episode, difficult to follow the canonical order	Two complete episodes
1998	Describes a series of sequential actions, a few dyads of actions and consequences, but difficult to see a conventional canonical structure	—

From the second set of recordings, the children's narratives conform to McKeough's (1987) description of four year olds. Their narratives were characterized by the setting up of the story, a trigger, an action, and a solution. These make up the essential elements of a complete episode.

The data from the third collection of child C's stories show a more complex structure denoted by a chain of action and reaction dyads. These data are comparable to McKeough's (1984) descriptions of six year olds' narratives in which the trigger is the beginning of a sequence of events.

Orientation

The orientation part of the study examined whether the subjects gave information to the deaf adult concerning the characters of the story and the placement of the events within a time frame (see table 5).

This table shows that more orientational information is made available in most categories after the second data collection. This finding is consistent with Peterson (1990) in which the maturity gained by the children allows them to better situate the character in the story. The information concerning time is better mastered. This improvement can be explained by the fact that, as he or she gets older, the child is better able to organize event sequences. The child marks this change by the use of the preposition *after*, which was noted nine times on the 11 time markers used in the subjects' stories.

By the third data collection, child C showed a marked improvement in his ability to provide orientation information in his storytelling. All the characters in the story were mentioned. Time information was described not only with markers such as AFTER but also with markers like BEGIN at the beginning of his narrative. Regarding information of placement, child C used the prepositions SUR ("on"), DANS ("in"), SOUS ("under"), and JUSQU'À ("until"). For the prepositions SUR, SOUS, and JUSQU'À, we believe that the child was influenced by signed French, which he is learning at school.

Table 5.   Number of times information is given regarding who, when, and where

Year	Qui ("who")		Quand ("when")		Où ("where")	
	Child C	Child D	Child C	Child D	Child C	Child D
1996	3	3	0	0	2	2
1997	3	4	7	4	1	7
1998	9	—	24	—	18	—

Each of the three times when data were collected, the children presented the characters in the story without any introduction. Only the characters' names and, sometimes, only generic designations (e.g., MAN rather than PIRATE) were used.

Use of Connectors

Research by Klecan-Acker and Blondeau (1990) tells us that narratives written by deaf children contain fewer relational markers than are found in hearing children's narratives. We wanted to see to what extent the use of relational markers had progressed with our deaf subjects. The data are presented in table 6.

The data show an important rise in the use of connectors in the narrative over time. Our data collection seems to have been done exactly at the time when this type of learning occurs. During the second collection of data, child C not only used the connector APRÈS ("after") but also, for a total of 4 times, he used the connector AVEC ("with"). The connectors PARCE QUE ("because of") and QUAND ("when") were used once. Child D used the connector AVEC ("with") 7 times, showing less variety in his use of connectors than child C. During the third collection of data, among the 53 connectors used, child C used DANS ("in") 11 times; AVEC ("with") 13 times; SUR ("on") 3 times; and JUSQU'À ("until") 2 times.

Use of Space

The use of space as a way of establishing reference in signed languages has been studied by many authors, including Padden (1990), Winston (1994), and Liddell (1990). Loew (1980) studied acquisition of verb modulation in American Sign Language (ASL), and she found that true verbal modulations incorporating two arguments appeared when the subject of her study was 3 years and 6 months old. Hoffmeister (1978) found that, by the age of 4 years and 4 months, the child he studied had mastered an adult's use of the following: pointing (in possessives), plurals, reflexives, and indexing nouns in space. Because our own subjects have hearing par-

Table 6.   The number of times subjects used relational markers during their narratives

Year	Child C			Child D		
	APRÈS *after*	Other relational markers	Total	APRÈS *after*	Other relational markers	Total
1996	1	0	1	0	2	2
1997	10	6	16	6	6	12
1998	23	30	53	—	—	—

ents and are relatively less exposed to the LSQ that is used by deaf people, we tried to see how they used space in indexing nouns, how well they mastered modulation, and how they used classifier verbs. In fact, we wanted to see if the development of their narrative skills was reflected in their mastery of LSQ grammar.

During the first data collection, none of the children used pointing to index referents in space. They also articulated no verb modulation: All verbs appeared in their citation form. Child C used the spatial verb ESCALADER ("to climb") with a V handshape. Nothing changed during the second data collection. We noted, however, a sequence where space was correctly used by child D. The sequence was the following: The cat opens the ship's hold, and then the dog falls into the hold. The verb TOMBER ("to fall"), a localized verb, was clearly directed toward the place where the door had been previously opened.

During the third data gathering, child C showed improvement in his use of space. In the first case, he signed PIÈCE-DE-MONNAIE TOMBER ("piece of money falling") in front of him. Then, he signed $_{PRO.3}$DONNER$_{PRO.3}$ ("to give to people") from where the falling had ended. The second time, he explained that the cat sees the dog up in the air. The verb VOIR ("to see") was then directed upward. However, he never assigned indexing reference to nominals. He used a classifier with the G handshape for a person but didn't assign spatial reference to it.

In one situation, child C used space in a consistent way to indicate location. He explained that the dog was hanging on a hook and then fell into the ship's hold. The verb TOMBER ("to fall") was executed from the place where the hook had been signed. But in another episode, where he explained that a cannonball was projected up to a boat, he signed the following:

> TOMBER JUSQUE DANS BATEAU
>
> *to-fall-up-to   in   boat*
>
> (intended meaning: "to fall into the boat")

The two adult signers, whom we had videotaped to establish an adult baseline sample of signed narrative discourse, located the cannon first, located the boat second, and then signed TOMBER from the cannon to the boat.

DISCUSSION

Interestingly, we note that the data from our first meeting show an important gap between the subjects and the literature concerning the development of narrative skills in hearing children. At the time, our subjects were 4 years old, and their stories were comparable to the stories of 2-year-old hearing children. But if we follow the narrative performance of our subjects, we can see that their evolution is rapid because the 2-year gap that was first observed almost disappeared by the age of 6. By that age, they each produced two complete episodes.

Marschark, Mouradian, and Halas (1994) observed that the narrative schemas of deaf children aged 7 to 15 years are comparable to those of hearing children. Interestingly, by the age of 6, our subjects' narrative skills were comparable to those of their hearing peers. We believe, however, that our two subjects did not attain the level described by Loew (1980) and Hoffmeister (1978) concerning the acquisition of indexing reference and verb modulation. Their not reaching this level is certainly because of the fact that, having hearing parents, they are not often exposed to deaf adults who use LSQ. We cannot say, therefore, that their progress in narrative skills is reflected by their acquisition of indexing reference and verb modulation in LSQ.

CONCLUSION

In this study, we saw a progression in the quality of story grammar in two deaf children. The progression can be observed in the way that the children introduced the characters of the story, increased their use of temporal and spatial markers, increased their use of cohesion markers and, consequently, increased coherence in the story. Furthermore, at the second data collection, full-fledged event sequences began to emerge. We can explain this development by the fact that narrative schemas are a mode of organizing knowledge and are dependent on cognitive skills that are developed through language. The fact that these children had been exposed to stories made it possible for them to develop their narrative schemas, and the results can be seen in their narrative grammar.

In further studies, we wish to extend our data collection to more subjects. In particular, we wish to study deaf children of deaf parents to investigate the particular linguistic devices they use in storytelling.

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