DOI: 10.1590/2317-1782/20152014048

Original Article

Artigo Original

Language acquisition: hesitations in the question/answer dialogic pair

Aquisição da linguagem: hesitações no par dialógico pergunta/resposta

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Keywords

Child Language
Linguistics
Speech, Language and Hearing Sciences
Communication
Child
Language Arts
Language Development
Speech

ABSTRACT

Purpose: (1) To verify the existence (or not) of hesitation marks in the beginning of utterances in children's discourse; and (2) to determine to what extent the presence/absence of these marks could be explained by retrievable facts in the production conditions of their discourses. **Methods:** Interview situations with four children aged 5–6 years attending Kindergarten level II in a public preschool at the time of the data collection were analyzed. The interviews were recorded on audio and video, inside a soundproof booth, with high fidelity equipment. Afterwards, the recordings were transcribed by six transcribers that were specially trained for this task. Transcription rules that prioritized the analyses of hesitations were used. For the analysis of retrievable facts in the production conditions of children's discourse, the dialogic pair question-answer was adopted. **Results:** A correlation between presence/absence of hesitation in the beginning of utterances in children and type of question (open/closed) made by the collocutor was observed. When the question was closed ended, the utterances were preferably initiated without hesitation marks, and when the question was open ended, the utterances were preferably initiated with hesitation marks. **Conclusion:** The presence/absence of hesitation marks in the beginning of utterances in children was found to be dependent on the production conditions of their discourses.

Descritores

Linguagem Infantil
Linguística
Fonoaudiologia
Comunicação
Criança
Estudos de Linguagem
Desenvolvimento da Linguagem
Fala

RESUMO

Objetivos: (1) Verificar a existência (ou não) de marcas hesitativas no início de enunciados no discurso de crianças; e (2) verificar em que medida a presença/ausência dessas marcas se explicaria por fatos recuperáveis na produção de seus discursos. **Métodos:** Foram analisadas situações de entrevistas de quatro crianças com 5–6 anos de idade que frequentavam o nível II de uma escola pública de Educação Infantil na época da coleta dos dados. As entrevistas foram gravadas, em áudio e em vídeo, no interior de uma cabine acústica, com material de alta fidelidade. Posteriormente, as gravações foram transcritas por seis transcritores treinados para essa tarefa. Foram utilizadas normas de transcrição que priorizavam a análise das hesitações. Para a análise de fatos recuperáveis das condições de produção dos discursos das crianças, foi adotado o par dialógico pergunta-resposta. **Resultados**: Foi observada correlação entre presença/ausência de hesitação em início de enunciados das crianças e tipo de pergunta (aberta/fechada) feita pelo interlocutor. Quando a pergunta era do tipo fechada, os enunciados iniciaram-se, preferencialmente, sem marca hesitativa; já quando a pergunta era do tipo aberta, os enunciados iniciaram-se, preferencialmente, com marcas hesitativas. **Conclusão:** A presença/ausência de marcas hesitativas em início de enunciados das crianças mostrou-se como dependente das condições de produção de seus discursos.

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Received: 04/04/2014

Accepted: 11/27/2014

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Financial support: Fundação de Amparo à Pesquisa do Estado de São Paulo – FAPESP.
Conflict of interests: nothing to declare.

INTRODUCTION

Several analyses for hesitations can be observed in studies of language acquisition. In a first set of studies, the focus lies on how the aspects of fluency and/or disfluency of speech indicate what is considered as normal or pathological in language acquisition. Therefore, in this research, both the disfluencies considered common to all speakers and the ones seen as more typical of individuals diagnosed with stuttering were analyzed[1-7].

In a second set of studies, the analysis of hesitations is in the context of relationships between subjectivity and stuttering. Although one can detect a concern with the pathology in these studies, there are questions in them on the origin of stuttering. Still, in this research, the negative view of speech disfluencies is criticized because, according to their authors, these disfluencies are inherent to language acquisition and their appearance lies not on the person itself but rather on the relationship between man and culture/society and on the "well-speaking ideology"[8,9].

A third line of work is characterized by a discursive analysis of the hesitations in the context of stuttering, supported by contributions from the French-oriented discourse analysis[10,11]. From this perspective, stuttering is seen as a language impairment directly associated with the discourse production conditions, arranged and characterized by precision and certainty of the error[11].

In a fourth set of studies, the focus turns to what their authors define as the temporal behavior of hesitations. Although their investigations have been conducted among adults, it calls for attention, in the studies resulting from these investigations, to the fact that their authors do not address hesitation as something that characterizes the disfluency[12,13]. Also notable in these studies is the conclusion reached by the authors — that hesitations and pauses would act together to maintain fluency[13].

In a fifth set of works, which investigate hesitations in normal language acquisition (and not in the context of the pathology), the analysis regards the formative role of hesitation and disfluencies in the language acquisition itself and for the importance of this role in the formulation and reformulation of utterances, allowing the child to make mistakes and slip through multiple chains that make up his or her speech. Also in this perspective, the hesitations enable the child to show, through language, his or her subjectivity[14,15].

Finally, in a sixth group of papers, the study is directed to hesitations that are shown in utterances of individuals diagnosed with Parkinson's disease[16-19], as well as in utterances of children with typical language acquisition[20]. In these works, the hesitations are seen as marks of the individual's negotiations with the other components of (his) speech and indicated both moments of turbulence in the individual/language relation and moments of (dis)adjustments in the relation between the individual and the characteristics of the production conditions of (his or her) discourse.

The analysis featured in this sixth group work will also be the one privileged in this article, whose proposition is to investigate the complexity of the hesitations in the typical language acquisition. To develop it, this study was guided by the following purposes:

1. to verify the existence (or not) of hesitation marks in the beginning of utterances in children's discourse; and
2. to verify to what extent the presence/absence of such marks could be explained by facts retrievable in the production of their discourses.

METHODS

Ethical procedure

This investigation was approved by the Ethics in Research Committee at the School of Philosophy and Sciences, Universidade Estadual Paulista "Júlio de Mesquita Filho" (UNESP) – Marília, under the process number 0132/2010.

Inclusion and exclusion criteria

Children whose guardians signed an informed consent were included in this study. In addition to parental consent for the participation in the research, before the data collection, all children underwent hearing and language screenings, being excluded from the sample (and sent to evaluation) those children that had, concerning these aspects, some deviant pattern.

Sample

The data were collected from the database Knowledge Appropriation in Child Language (ACoLI), which gathered speech samples from children aged 4 years and 10 months to 6 years and 2 months. Such children attended, during the collection of their data, level II of Kindergarten Education (preschool), full time, of a public school in the city of Marília (SP). The choice of full time was justified by the fact that the children rarely missed school because their parents worked all day. As for the choice of level II of the Kindergarten Education, it was justified by the fact that, at this level, children were already 5 to 6 years old and, therefore, presented more elaborate language development compared to the younger ones.

Ten interviews with 24 children of both genders were initially foreseen. However, for the development of this research, the interviews of four children were selected. To better control for variability of the data, these children were chosen for having participated in all the interview situations proposed in the development of the research. Coincidentally, these four children were of the same gender — male. Chart 1 shows the age distribution of four children according to the beginning and end of data collection.

Data collection procedure

Initially in the data collection, ten educational workshops were conducted by the teaching staff of the school together with one of the authors of the present research. Monthly, these workshops were held in the classroom by

Chart 1. Age of the four children in the first and last collection of interview situations

Individual	Date of birth	Age at the first interview situation	Age at the tenth interview situation
S01	06/21/2006	4 years and 10 months	5 years and 4 months
S02	06/17/2006	4 years and 10 months	5 years and 4 months
S03	10/04/2005	5 years and 6 months	6 years
S04	08/14/2005	5 years and 8 months	6 years and 2 months

the teacher responsible and videotaped by two documenters. One week after the recording of each workshop, each child from the classroom was interviewed individually by one of documenters. These interviews were recorded, in full, inside an acoustic booth installed in the institution where the data were being collected, using high-fidelity equipment: a MARANTZ (PMD 660 model) digital recorder coupled to a cardioid dynamic SENNHEISER (e855) microphone, thus allowing better sound quality of the recordings; and a SONY camcorder (DCR-SR68 model), allowing, in addition to the acoustic record, the observation of aspects that the audio record does not allow to observe, for example, moments of silence and/or gestures. The conduction of such interviews followed the purposes that guided the proposition and development of each workshop in the classroom.

After the recording of each interview, the data were organized in frequency charts of each child; identification of audio and video files according to a preliminary identification of each child; and, finally, organization of the transcripts of each interview by each child.

Transcripts and reliability of data

The interview situations were transcribed according to rules that prioritize the analysis of hesitations[21-23]. These transcriptions were performed by six members of the Research Group on Language Studies (GPEL/CNPq), specially trained to carry out this task.

The recordings were divided randomly among each of the six researchers for the task of transcribing. The files used were, primarily, the footage ones, to search and transcribe not only the conversational aspects but also the gestures and expressions made by the children.

For the evaluation and agreement on the transcripts, the six researchers were divided into two groups to revise the transcripts already made. According to this division, a first researcher transcribed and subsequently gave the transcribed text to the other two members of his or her group, who evaluated, together, the transcript and noted cases in which there were possible disagreements of judgment. Then, the transcript returned to the first person, the one that had elaborated it. In the cases of potential discrepancies between the first transcriber and the two reviewers, the criterion of common agreement of two of the three researchers was adopted to significantly reduce the subjectivity inherent to the interpretation of data. After all the transcripts were revised, the six judges, still divided into the two groups, came together to review one last time all the transcripts.

For the organization and display of data, we organized the following identification for the children: S01, S02, S03, and S04. For the documenters, we adopted the identification D01 and D02.

Analysis criterion

To characterize the hesitations, the following classifications of hesitation marks were proposed: silent pause, filled pause, hesitant word elongation, sudden cuts, hesitant repetition, and stuttering[17,18,23,24].

To verify the possible influence of facts of the discourse production conditions in the presence/absence of hesitations in utterances of children, the dialogical pair question/answer was proposed as the unit of analysis[25]. In this type of unit, the questions can only be of two types: open or closed ended. The open questions are those initiated by interrogative linguistic markers, for example: how, where, when, who, whose, and what[25]. This type of question favors the emergence of more elaborated answers. The closed questions are those that mobilize yes/no answers (and equivalents). This type of question restricts syntactically and semantically the collocutor's response, in other words, does not favor the progression of the utterance.

Statistical analysis

A statistical processing of data was performed using the STATISTICA software (version 7.0). For the analysis of data about the first goal — to verify the existence (or not) of hesitation marks in the beginning of utterances in children's speech —, the parametric Student's *t*-test was used for dependent variables. As for the analysis of data about the second objective (to verify to what extent the presence/absence of such marks could be explained by facts retrievable in the production of his or her speech), the nonparametric 2x2 Tables test was used. In the latter test, 2x2, χ^2, and Phi^2 were used of its contingency table. A significance level of $\alpha \leq 0.05$ and a 95% confidence interval were established.

RESULTS

To answer the first purpose, the total utterances produced by the four children together were first calculated and, then, it was observed if their beginning happened with or without occurrences of hesitation. On the basis of the interview situations, we reached a total of 1,270 utterances. In the distribution between utterances started with and without hesitations, there was a higher number of utterances initiated without the occurrence of hesitation, as seen in Table 1. This distribution was also found to be statistically significant.

Table 1. Distribution of the utterances initiated with and without hesitation

Utterances	n (%)	Mean (SD)	Min–Max	Student's *t*-test
No occurrence of hesitation	760 (59.8)	190 (60.3)	147–279	t=3.91 p=0.029 df=3
With occurrence of hesitation	510 (40,2)	127.5 (33.1)	103–175	

Student's *t*-test for dependent samples (p≤0.05)
Caption: df = degree of freedom; Min = minimum; Max = maximum; SD = standard deviation

The following are examples of utterances that began without hesitation marks:

- Example 01 (Interview situation 03)
  D02 Where did you put the bean?
  S01 In the cotton
- Example 02 (Interview situation 04)
  D02 That is right + tell me what the field mouse ate? Do you remember?
  S01 CHEESE
- Example 03 (Interview situation 07)
  D01 How is the drum kit?
  S03 Drum kit has drum + and + and + and + and there is a thing that looks like a plate + and + and there are some sticks to hit
- Example 04 (Interview situation 10)
  D02 What time is it?
  S01 Eight in the evening

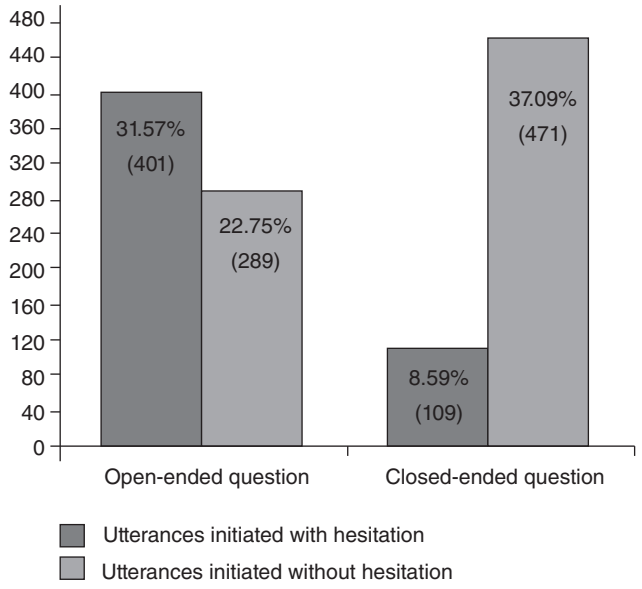
In the exemplified interview situations, the utterances produced by children were not initiated with hesitation marks. One can see, in Example 03, that S03 had hesitation pauses and repetitions (+ and + and + and + and) in his utterance; however, these occurrences were after the beginning of the utterances, in other words, they are within the utterance. Those occurrences therefore were not considered in this investigation.

Next, we will show examples of utterances that began with hesitation marks:

- Example 05 (Interview situation 01)
  D02 What is the guitar like? Tell me
  S01 But ± but / but but I do not remember anymore
- Example 06 (Interview situation 06)
  D01 That is right, L. and what else was there besides the lighthouse?
  S02 eh:: ± grass and tree bush + land
- Example 07 (Interview situation 02)
  D01 oh:: ok + but how was the place where they ran?
  S02 ±there was a ye::llow thing + and also + when they arrived in the forest + the turtle went on the mountain and saw:: the racing thing and she won and got her face all pink
- Example 08 (Interview situation 09)
  D01 And what? ++ is a character of *sítio do pica-pau amarelo*
  S04 ±emília

In Examples 05 to 08, the utterances of S01, S02, S03, and S04 begin with the occurrence of hesitation. In Examples 05 and 06, the hesitation is shown by combined marks. In Example 05, hesitant repetition (four times the word "but"), silent pause (+), and rough cut (/) are combined in this mark; in Example 06, filled pause (eh), hesitant word elongation (::), and silent pause (+) are combined. It is worth noting, once again, that, for this study, only the hesitation occurrences in the beginning of utterances were taken into account. Thus, in Example 06, the second occurrence of pause (bush + land) was not computed. But in Examples 07 and 08, the utterances of children begin with just one hesitation mark: the silent pause (+).

After the distribution of utterances, and to meet the second purpose of this research, it was verified to what extent the presence/absence of hesitation at the beginning of utterances in children would be linked to the type of question — open/closed ended — preceding these utterances. The results showed that the occurrence of utterances initiated hesitantly is greater when children were exposed to questions of the open type; when exposed to questions of the closed type, the occurrence of utterances started without hesitation was higher (Graph 1). In statistical test (Table 2), it can be observed that this distribution was highly significant (p=0.00). Still, the test showed correlation between utterances that began with and without hesitation versus type of question — open/closed.



Graph 1. Distribution of open and closed questions versus utterances started with and without hesitation marks

Table 2. Distribution of utterances initiated with and without hesitation *versus* answers to the open and closed questions

Utterances	Answers to the open questions n (%)	Answers to the closed questions n (%)	χ^2	Phi²
No hesitation	289 (22.75)	471 (37.08)	χ^2=202.76 p=0.00 df=1	0.15
With hesitation	401(31.57)	109 (8.58)		

2x2 Tables test (χ2/V²/Phi², McNemar test, Fisher's exact test) for dependent samples (p≤0.05)
Caption: df = degree of freedom

The following are examples of utterances that began with and without hesitation marks, produced as responses to closed questions:

- Example 09 (Interview situation 05)
  D02 Do you remember at least one name of the/the painters?
  S01 ±± no
- Example 10 (Interview situation 06)
  D01 Don't you remember what you did in the room?
  S02 ±± one ± one ±± we took one sponge and do + AL/+ all those little sponge squares
- Example 11 (Interview situation 09)
  D01 But then you won a ball right?
  S03 I won
- Example 12 (Interview situation 04)
  D01 Was the field mouse frightened with the cat?
  S04 Yes + but then he came home

In Examples 09 to 12, the utterances of D01 and D02 are characterized as responses to closed questions. As you can see, this kind of question, in most cases, does not lead to the development of formulations to resume the meaning of yes or no. In Example 09, S01 responds negatively to the question (++no), and, in Example 11, S03 responds with the resumption of the verb used in the question (won / won).

Unlike closed questions, open questions allow — and we expect — the collocutor to elaborate his answer. It is what you see in the examples of answers to open questions, as follows:

- Example 13 (Interview situation 03)
  D02 But why did we eat it?
  S01 It is to make us strong
- Example 14 (Interview situation 04)
  D01 Why do you think you live in the country?
  S02 Because it is very quiet there
- Example 15 (Interview situation 10)
  D01 How will your graduation be?
  S03 ± uh:: ± it will be will be gran::d + with a lot of people + and and + and what we will use for graduation is + the the + the wan / + no + eh + the flag + and + ((tongue snap)) + the flag and after the flag + the handkerchief and after the handker::chief ++ the thethe bow after the arrow + the:: sleeve and after the sleeve the wand
- Example 16 (Interview situation 06)
  D01 And arriving there in the house, what did they do?
  S04 hum:: ± the city mouse offered + a:: + table with LOts of food

In Examples 13 to 16, the utterances produced by D01 and D02 were also of open question type. In Examples 13 and 14, the utterance-responses of S01 and S02 do not begin with hesitation — unlike what happens in the set of utterance-responses of S03 and S04, in Examples 15 and 16, initiated with combined hesitation marks.

With this set of results exposed, we can pass to the explanatory hypotheses for its operation in the discursive production of individuals.

DISCUSSION

Regarding the results for the first purpose of this research, 1,270 utterances were produced by the four children. Of this total, the amount of those started without occurrences of hesitation was higher (760; 59.8%) than the amount of those started with occurrences of hesitation (510; 40.2%). This difference was also statistically significant (p=0.029), pointing to the trend of nonoccurrence of hesitation in the beginning of utterances of the studied group of children.

This trend could be explained by the relationship between speech disfluency and age of the children (5 to 6 years old). Indeed, the children in the study have high age considering language development, confirming that the occurrence of hesitation tends to broadly stable throughout the child development[1,3,5]. The tendency of nonoccurrence of hesitations in the beginning of utterances in children may also be due to the familiarity of the children with the issues brought up at the time of the interviews (which were previously worked in the educational workshops organized one week before the interviews) because fluency may depend also on the child's ability to understand the morphosyntactic structure of the utterances[5]. Finally, although this investigation has prioritized only the analysis of the beginnings of utterances, the hesitations tend to not to cluster at the beginning, middle, or end of the spoken texts, but rather to distribute along the spoken production[13].

However, although the number of utterances initiated without hesitation marks is considerably larger, when we look at the standard deviation, in Table 1, it can be observed that the fluctuation in the utterances initiated with hesitation (33.1) is smaller than the one in the utterances without hesitation (60.3). In other words, there is more homogeneity to hesitate than to not to hesitate in the beginning of utterances in the study group. This greater homogeneity in favor of disfluency suggests, therefore, that hesitation is constitutive of the language and its appearance shows "the defrosting of the places of subjectivity, of the formally drifting language" (p. 169)[26]. In other words, the hesitation shows subjectivity in the linguistic surface.

Finally, regarding the results that refer to the second purpose of this research, it was observed that the children presented more hesitation in their beginnings when put in the position to answer open questions. Indeed, of the 510 (100%) utterances initiated hesitantly, 401 (78.6%) were answers to open questions and 109 (21.4%) to closed questions. This proportion is reversed in the utterances started without hesitation marks: of 760 (100%) utterances, 471 (62%) were responses to closed questions and 289 (38%) to open questions. These differences were also highly significant from a statistical point of view: the χ^2-test (χ^2=202.72, p=0.00) shows difference in the use of hesitations in the beginning of the utterance depending on the type of utterance-question that precedes it. The Phi^2 test (0.15) shows there is an effect from the type of utterance-question (open or closed) on the presence/absence of hesitation in the start of the utterance.

Based on the inversion of values and statistical significance, it can be observed that although utterances started without hesitation had occurred in a higher percentage than those started hesitantly, the latter are characterized by being, for the most part, answers to open questions. It appears, therefore, that when children are put in a position to answer an open question, they show themselves more unstable, given the vagueness of what they are compelled to respond — which curtails their anchorage in the speech of the other/of (their) collocutor. Hesitations suggest, therefore, their position in relation to this uncontrolled demand of (their) speech. The opposite can be said about the relationship between closed questions/answers started with hesitation. In these, the specific demand already put in question and the possibility given in advance of what can be the answer (yes/no) produce the effect of greater stability for the children in the production of their utterances. Closed questions promote, therefore, answers resembling crystallized utterances, strongly dominated by the discourse of the other, which do not favor the presence of hesitations[14,26]. The open questions promote greater distance between the speech of the other and the speech of the child, in which case "[...] there is a tendency to disfluency [...] in [the] beginning of a conversational topic for the child, or when he or she tries to respond with non-crystallized expressions to polar or w-questions"[28] — as those characteristic of the utterances of D01 and D02.

It is worth noting, finally, that the effects of the open question for the occurrence of hesitations overlap the effect of knowledge of the subject and / or familiarity with the interlocutor, given the scope of their action to explain the results of this research.

CONCLUSION

Taking into consideration the amount of utterances analyzed in this study, although preferably they were initiated without hesitation marks, the presence/absence of hesitation was directly associated with the type of question asked by the collocutor to the children. As noted, when put in a position to answer an open question asked by the collocutor, children showed greater turbulence to start their answer.

Thus, the results point to the need of not analyzing separately the utterances because the presence/absence of hesitation marks in their beginnings proved heavily dependent on the type of dialogic pair involved in the production of the discourse. Therefore, when analyzing discursively the functioning of hesitation in utterances produced by children that are in the process of language acquisition, it is necessary to consider the characteristics of their production conditions — for example, those linked to the type of the requirement these children are subjected at the time of a question.

Although the results were drawn from utterances of children without fluency alterations, it is believed that they can provide linguistic-discursive parameters for the work of evaluation and treatment in speech-language pathology and audiology, in cases of language pathology concerning the analysis of the fluency in a context of dialogic interaction. In this regard, however, a highlight should be made. This contribution proved possible mainly because of the type of methodology privileged in this study, to the extent that it was guided by the search for data collected in dialogical situations of less controlled speech, closer to those observed in the real situations of language use in which children take part.

We also believe that the highest frequency of hesitation in the beginning of utterances regarding open questions can contribute, to some extent, to the work of educators in the classroom because it can draw their attention to the importance of addressing the children preferably with open discourse, encouraging them to elaborate their answers — and hence their speech itself. Yet, concerning the work of educators, the results of this research can, in some way, also contribute to the work of the teachers with students that have language pathologies.

Finally, it is worth noting the limitations of this study. Indeed, it is the analysis of the discursive production of children of the same gender and age group. It is also about the production of a discourse genre, the interview. Thus, the expansion of the data (higher amount of children, other age groups, other discursive genres) is needed in future studies to verify the maintenance (or not) of the trends that were found.

ACKNOWLEDGMENTS

We acknowledge the financial support provided for the transcribers and evaluators of data from this research and the Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP) (process number 2011/15367-1).

**LC was responsible for defining the objectives, methodology, results, and discussion; CCSV was responsible for choosing the theme, defining the objectives, methodology, results, discussion, and conclusion.*

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