

DISFLUENCIES OF YOUNG CHILDREN IN PRIVATE SPEECH AND IN CONVERSATION

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RESUME

L'article rapporte des observations systématiques sur deux situations de jeu: dans la première il s'agit d'un enfant avec un adulte, dans la deuxième d'un enfant seul. Les dix sujets étaient âgés de 3.5 à 5.0 ans. Les cinq séances de vingt minutes avaient lieu chacune dans la même salle de jeu. Dans chaque séance l'enfant jouait dix minutes avec un adulte: puis dix minutes seul. Le nombre de mots émis et le pourcentage de mots énoncés avec difficulté ou balbutiement ont été les mêmes dans les cinq séances. Les dix enfants ont tous prononcé moins de mots, mais avec un plus grand pourcentage d'hésitations et de balbutiements, en solitude.

ABSTRACT

Systematic observations are reported on two play situations involving 1) a child and adult, and 2) child in isolation. The 10 subjects ranged in age from 3.5 to 5.0. Each of the five sessions took place in the same playroom and were of 20 minutes duration. For 10 minutes of each session the child was involved in play activities with an adult; for the other 10 minutes the child played alone. The number of words spoken and the percent produced disfluently by the children were stable across the five sessions. All 10 children produced fewer words, but produced a greater percent of the words disfluently, in the private speech condition.

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Variability in disfluency as a function of environmental circumstances is an important element in many theoretical considerations of stuttering onset. Few empirical data are available, however, to support the notion that the disfluencies in children's speech are, in fact; environmentally variable. In two previous experiments (Martin, Haroldson, and Kuhl, 1972a; Martin, Haroldson, and Kuhl, 1972b) we observed that children spoke words at about the same rate, and produced about the same percent of these words disfluently, in four different environments: conversing with a talking puppet, conversing with an unfamiliar adult, conversing with another child, and conversing with a mother.

On the other hand, Silverman (1971, 1972) found that four-year-old children produced a larger proportion of words disfluently when talking with an adult interviewer than when interacting with peers. In a subsequent article, Silverman (1973) offered the tentative hypothesis that perhaps language usage (ego-centric versus socialized) as well as the speaking environment is a factor in determining the amount of disfluency in a child's speech.

In view of the above findings, we designed an experiment in such a way as to maximize the possibility of obtaining differences in children's disfluency rates. Specifically, we observed disfluency rates in a situation where a child interacted with an adult in a playroom, and in a situation where the same child was alone in the same playroom.

METHOD

Subjects and Apparatus

The subjects were 10 children, ages 3.5 to 5 years. The experimental room (playroom) contained a variety of toys (for example, an airport, a farm, a kitchen, and a fire station). The experimental room was adjacent to a control room where the subjects were monitored via one-way mirror and sound amplifications systems. All sessions were tape recorded.

Design and Procedure

Each of the 10 subjects was run for five sessions, with each session held on a different day. A subject participated in two experimental conditions each session. The order of experimental conditions within sessions was randomized across subjects.

In the Adult Condition, the child was escorted into the playroom by a female experimenter and the two played and talked for 10 minutes. The only constraint placed upon the experimenter was that she make the conversation as natural as possible.

In the Private Condition, the child was allowed to play alone in the playroom for 10 minutes. When the Private Condition followed the Adult Condition, the experimenter simply excused herself on one of a number of pretexts and left the room with the assurance that she would return shortly. When the Private Condition occurred first in a session, the experimenter ushered the child into the playroom and left after one or two minutes. As in the former condition the child was assured that the experimenter would return shortly. The 10-minute Private Condition began only after the experimenter left the room.

After each session, an experimenter counted the number of words and the number of disfluencies emitted during the session. Disfluencies were defined as repetition, prolongation, or interjection of a sound, syllable, word, or phrase. Only one disfluency was counted per instance, regardless of the number of times a given unit was repeated or interjected, or regardless of the duration of a prolongation.

RESULTS

Word Output

The top two lines in Figure 1 give the average number of words spoken per child during the first five minutes and the last five minutes of each condition in each session.

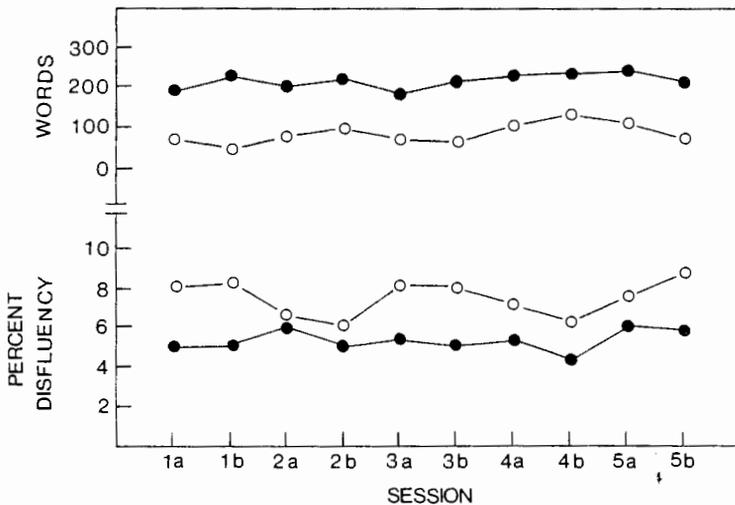


Figure 1. Average number of words spoken and average percent words disfluent in the first and second five minutes of each session. Closed circles indicate Adult Condition, open circles indicate Private Condition.

A two-factor analysis of variance with repeated measures on one factor (Winer, 1971) was computed on the word output data as given in Figure 1. Neither the session main effect nor the treatment by session interaction was significant. The treatment main effect, however, was significant ($F = 8.27$; $df = 1,100$; $p = 0.01$) indicating subjects reliably spoke more words in the Adult Condition (closed circles) than in the Private Condition.

Disfluency

The bottom two lines in Figure 1 give the average percent of disfluent words per child during the first and last five minutes of each condition in each session.

A two-factor analysis of variance with repeated measures on one factor was computed on the percent disfluency data given in Figure 1. Neither the session main effect nor the treatment by session interaction was significant. The treatment main effect was significant ($F = 7.24$; $df = 1,100$; $p = 0.01$) indicating that subjects emitted a higher percent of disfluent words in the Private Condition (open circles) than in the Adult Condition.

Reliability

The following procedures were used to determine the reliability with which the experimenter counted disfluencies. Eight tapes were selected at random from the 50 tapes (10 subjects times 5 sessions). One five-minute segment from each of the eight tapes was dubbed onto a master tape. An independent observer counted the disfluencies in each sample of the master tape.

The mean numbers of disfluencies per sample counted by the experimenter and the independent observer were 5.0 and 5.4, respectively. Obviously, the difference between these means was not statistically significant. A Pearson correlation coefficient was computed between the counts of the experimenter and the observer on the eight samples. The resultant coefficient was 0.92.

DISCUSSION

The number of words spoken and the percent of disfluent words emitted by the children in the Adult Condition of this experiment are quite comparable to those observed in all conditions of our previous two experiments (Martin et al, 1972a and 1972b). The children performed differently, however, in the Private Condition of the present study. They emitted fewer words as might be expected, but they produced proportionately more of these words disfluently. This finding was somewhat unexpected in view of Silverman's report that children experience more disfluencies in socialized than in egocentric speech. It is becoming increasingly apparent that the relationship between the speaking en-

vironment, the speaking purpose, and the speech fluency of children is complex. It is necessary that we delineate the important variables of this complexity if we are to understand whether and how stuttering develops from the normal disfluencies of children.

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