

Development of Referential Communication in Children : Changes in Response to Listener's Feedback

著者	SATO ISAO
journal or publication title	Tohoku psychologica folia
volume	36
page range	1-8
year	1978-03-20
URL	http://hdl.handle.net/10097/00064917

DEVELOPMENT OF REFERENTIAL COMMUNICATION IN CHILDREN: CHANGES IN RESPONSE TO LISTENER'S FEEDBACK

By

ISAO S A T O (佐藤 功)

(Faculty of Education, Kanazawa University, Kanazawa)

Two experiments were carried out to examine the developmental changes in the children's referential communication. In the first experiment, where the nonsense figures (novel graphic figures) were used as materials, 6-year-old children reformulated significantly less information than did the 8-year-olds, while the 'reformulated' response in both age groups was found to increase as the listener's feedback became more explicit. The second experiment, in which the familiar figures (pictures) were used as materials, indicated that the 6-year-olds had failed to edit or modify their messages when requested to 'elaborate'.

As Cohen & Klein (1968) pointed out, with the exception of Piaget's notable work (1923), until recently, the ability to use language in interpersonal communication was rarely the focus of research on language development. However, one of the experimental methods has been developed for studying referential communication behavior in children (Glucksberg, Krauss & Weisberg, 1966), patterned after a communication task employed by Krauss & Weinheimer (1964). In the recent reviews, it was described that up through the early elementary school years children perform quite poorly on laboratory tasks which measure referential communication (Sato, 1974; Glucksberg & Danks, 1975; Glucksberg, Krauss & Higgins, 1975). Especially, it was suggested that young children are particularly deficient in making their messages contingent upon the listener's needs.

The present study was designed to confirm the developmental changes in children's response to different indications of the listener's feedback. The second purpose of this study was to investigate children's ability to describe accurately the referent figure and to elaborate their message in accordance with the need of their listener.

EXPERIMENT I

The purpose of the first experiment was to confirm the developmental changes in children's response to three indications of negative feedback concerning the adequacy of their initial descriptions about nonsense figures.

METHOD

Subjects and Experimenters: The *Ss* were 45 children from an urban preschool (mean age 6;2, range 5;8 to 6;7) and 44 second graders from an urban elementary school (mean age 8;2, range 7;7 to 8;10). Approximately half of each age group were girls and half were boys.

There were 2 *Es* (adults): *E1* gave the instructions and presented the stimuli; *E2* played a guessing game with the child, taking the role of listener and giving various kinds of feedback to the child's verbalizations.

Stimuli: The stimulus materials were 12 drawings of nonsense figures (novel graphic figures) on 9×9 cm white cards. Half of these drawings were obtained from Kruass's materials and half were made originally by the author for this experiment. Out of 12 drawings, 4 drawings were selected as target figures that were used in practice session and three-tasks session (T_1 , T_2 , T_3). Each target figure was drawn on a large white card (21.5×21.5 cm).

Procedure: After each child had made rapport with both *Es*, he was taken into the experimental room by *E1*. The room contained a table with a divider down the middle of it at such a height that *S* and *E2*, while sitting on opposite sides, could see each other's faces but not the opposite surface of the table. On *E2*'s side were 12 white 9×9 cm cards with a variety of nonsense figure drawings on them. This set of small cards was identical to the stimulus cards seen by the child.

As a pretest, the child was shown the target figures by *E1* and asked to describe them orally. After the pretest, each *S* was shown the set of small cards on *E2*'s side of the table. The *S* was told that he and *E2* were going to play a guessing game. His task was to describe orally the target figures, which *E1* presented behind and just above *E2*'s head. It was stressed to the child that, as *E2*'s helper, he was to try as hard as possible to help *E2* guess the right drawing. The *S* was given a practice session to make sure that he understood the nature of the task, and *E1* told *S* whether or not *E2* had guessed correctly.

During the three-tasks session (T_1 , T_2 , T_3), *E2* responded to *S*'s descriptions (pre-feedback responses) in one of three ways:

Facial feedback (F-f): *E2* gave stereotyped facial expressions that indicated puzzlement and bewilderment after scanning the cards.

Implicit feedback (I-f): *E2* gave only two prompts which approximated, "I don't understand," and "I don't think I can guess that."

Explicit feedback (E-f): *E2* gave two prompts which approximated, "Look at it again. What else does it look like?" and "Can you tell me anything else about it?"

If the child responded to any feedback by giving verbal description about the target figure (post-feedback response), *E2* chose the correct matching card. If the child did not respond by giving verbal description, *E2* said "Let's try once more," then the same figure was presented.

The experiment in task session was carried out in the same order for each *S*

($T_1 \rightarrow T_2 \rightarrow T_3$), but the feedback presentation was counterbalanced for each task.

RESULTS

The number of Ss at each age group that gave verbal description for each of the feedback conditions during the three-tasks session, is presented in Table 1. The table shows that 6- and 8-year-olds reacted very similarly to the implicit and explicit feedback conditions (I-f and E-f). That is, most children, whether explicitly or implicitly requested, could give verbal description about the drawings. In contrast, the 6- and 8-year-olds were sharply differentiated on their responses to facial requests for additional information (F-f). Seventy five per cent of the 8-year-olds could give verbal description about drawings after the facial feedback, whereas 44 per cent of the 6-year-olds showed such description. This difference between both age groups could be found significantly ($p < .005$, $\chi^2 = 8.62$).

Table 1. Number of subjects at each age group giving verbal description after presentation of each feedback

Condition \ Age	F-f	I-f	E-f
6	20	37	44
8	33	44	44

In order to examine the corresponding developmental changes in the children's ability to reformulate or recode their messages after they have received each negative feedback, in relation to the pre-feedback response, post-feedback responses were classified into four categories as follows: (a) *New Description*; it refers to a post-feedback description which likened the referent to a different object. That is, if the initial, pre-feedback description was "it's like a flower"; the second might be "it's like a pinwheel." (b) *Modified Description*; it might be "a flower with three angular petals", when S has given the same initial description noted above. (c) *Repeated Description* and (d) *Silence*. The results of the post-feedback response classified into these categories are shown in Fig. 1. As can be seen in Fig. 1, the children's ability to reformulate their messages, after presentation of each negative feedback, increases with age. The results of the present study are consistent with those of Glucksberg & Krauss (1967) concerning the socially appropriate behavior.

For the statistical analysis, the data were grouped into two categories; *Reformulation* (the above categories a and b) and *Non-reformulation* (the above categories c and d). The chi-square tests indicated that the age difference was significant. Table 2 shows that, while both age groups came to interpret more correctly the feedback with the increment of explicitness, in comparison to the 6-year-olds, the 8-year-olds tended to reformulate more effectively their messages in response to any feedback. In making a comparison between the results in Table 1 and those in Table 2, it was suggested that

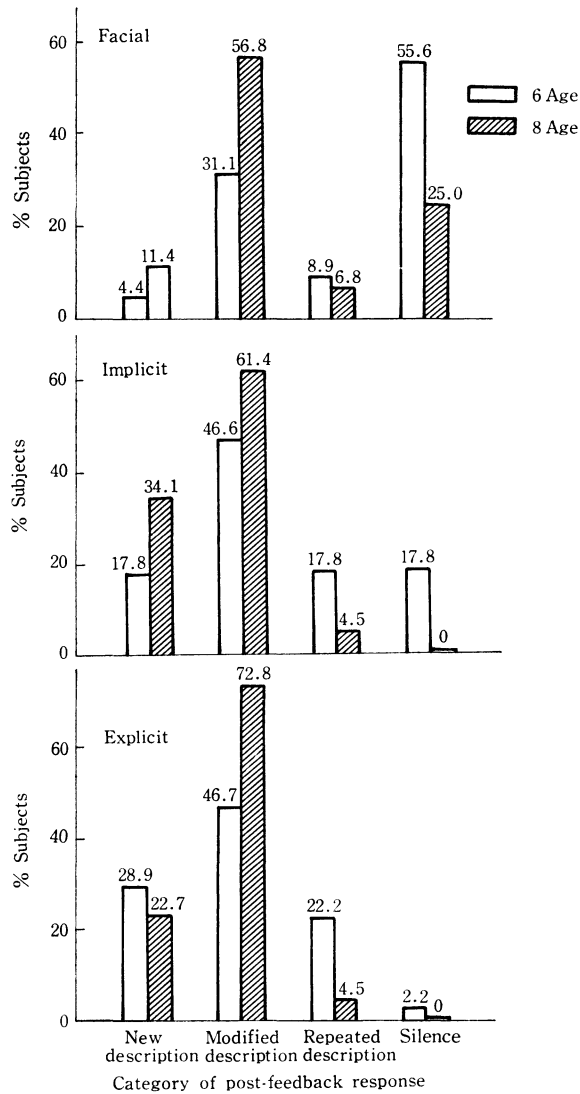


Fig. 1. Post-feedback response classified into four categories

the 6-year-olds interpreted the implicit feedback as a request for additional information but did not understand what kind of information was needed. The results seem to be parallel to those of the experiment with 4- and 7-year-old children by Peterson, Danner & Flavell (1972).

Table 2. Number of subjects at each age group giving post-feedback response divided into reformulation and non-reformulation

Response	Condition		F-f		I-f		E-f	
	Age		6	8	6	8	6	8
Reformulation			16	30	29	42	34	42
Non-reformulation			29	14	16	2	11	2
χ^2			9.48**		11.41*		5.56***	

* $p < .001$ ** $p < .005$ *** $p < .02$

EXPERIMENT II

The second experiment was carried out to investigate the developmental changes in the communication accuracy and elaboration of descriptive information about familiar figures.

METHOD

Subjects and Experimenters: The *Ss* and the *Es* were the same as in Exp. I.

Stimuli: The stimulus material used in this experiment consisted of three sets of pictures. The set used in practice session contained 4 9×9 cm cards, on each of which a single picture was drawn. The pictures in this set consisted of four variations of one figure which had two attributes that could be varied independently; this figure shows a *house* which had a round or rectangle window, and a symmetric or asymmetric roof.

Each set used in task session (T_1 , T_2) contained 8 9×9 cm cards with a single picture on each of them. The pictures in each set consisted of eight variations of one figure which had three attributes that could be varied independently; the figure in the first task (T_1) shows a *bird* which has a beret or a crown, an open or closed beak, and a fluffy or smooth tail. The figure used in the second task (T_2) was a *car*. The attributes in this figure were as follows; the color of the car (blue or red), the position of a man (in front of or behind the car), and the position of a dog (in front of the car or behind the man). Out of the pictures in each set, one picture was selected as a target figure that was used in each session. Each target figure was drawn on a large card (21.5×21.5 cm).

Procedure: (1) Practice session: The *Ss* were asked to point out the same picture as the target figure and verbally describe the critical attributes that distinguish the target figure from the rest of the figures from which it has to be discriminated by *E2*. (2) Task session: Both the first and second tasks (T_1 and T_2) consisted of three trials. Most part of the procedure in this experiment was similar to that in Exp. I. However, the procedure in this task session was distinctive at the following point; in two tasks, *E2* gave only the implicit feedback after the first or second trial. In the second task (T_2), especially, *E2* gave an *elaboration* feedback (i.e., "Look at it again. Can you tell me about it in good order and intelligibly?" and "Can you make up one sentence?")

to each *S* who could show a complete verbal description of critical attributes at the first or second trial.

RESULTS

Fig. 2 shows the accumulative percentages of the *Ss*, who could give the complete verbal description about critical attributes at each trial in each task. Significant results were observed for age; T_1 : at 1st trial ($p < .001$, $\chi^2 = 13.06$), at 2nd trial ($p < .005$, $\chi^2 = 9.48$), and at 3rd trial ($p < .005$, $\chi^2 = 9.08$). T_2 : at 1st trial ($p < .05$, $\chi^2 = 4.95$), at 2nd trial ($p < .01$, $\chi^2 = 7.33$), and at 3rd trial ($p < .005$, $\chi^2 = 10.05$). The 6-year old children, even after the implicit feedback, gave less accurate description than did the 8-year-olds.

In order to examine the effect of elaboration feedback, for the *Ss* in T_2 who could give the complete description of critical attributes, each post-elaboration feedback response was classified into four categories; (a) *Complete and interrelated description*: ex., "A dog is running after the man who pushes a red car." (b) *Complete but redundant information-added description*: ex., "a red car with three windows; a man behind the car who wears his trousers; behind the man a dog turns a tail." (c) *Complete but separated description* (repeated description) and (d) *Silence*.

The results for the post-elaboration feedback response classified into these categories are given in Table 3. For the statistical analysis, the data were grouped into two categories; *Elaboration* (the above category a) and *Non-elaboration* (the above categories b, c and d). The chi-square test indicated the significant age difference ($p < .005$, $\chi^2 = 9.08$). That is, 72 per cent of the *Ss* in 8-age group, who had given the

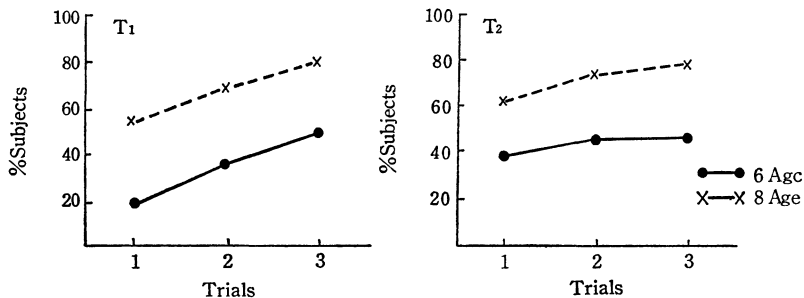


Fig. 2. Accumulative percentages of subjects giving complete description of critical attributes.

Table 3. Number of subjects at each age group giving post-elaboration feedback classified into four categories

Categories Age	(a) Comp. int.	(b) Comp. red.	(c) Comp. sep.	(d) Silence	Total
6	5 (25.0 [†])	6 (30.0)	0 (0.0)	9 (45.0)	20 (100.0)
8	23 (71.9)	2 (6.3)	5 (15.5)	2 (6.3)	32 (100.0)

†: Percentage

complete description of critical attributes in T_2 , could adequately elaborate their message after the feedback requested to do so, whereas 25 per cent of those in 6-age group did. Especially, it is noticed that 9 of 20 6-year-olds who had been able to describe critical attributes, nevertheless, came to be silent to the elaboration feedback. The results suggest that the 6-year-olds could not adequately interpret the elaboration feedback, and failed to understand what kind of description was needed and to reconstruct their previous description according to the request for elaboration.

DISCUSSION AND CONCLUSION

In the first experiment, where the nonsense figures (novel graphic figures) were used as materials, 6-year-old children (kindergarden children) reformulated significantly less additional information than did the 8-year-olds (2nd graders), while the 'reformulated' response in both age groups was found to increase as the listener's feedback became more explicit. The results seem to be parallel to those of related research.

Several studies have examined young speaker's ability to reformulate their messages when an adult listener provides a standardized message indicating that further information is needed. Glucksberg & Krauss (1967) asked *Ss* (children in kindergarden, 1st, 3rd, 5th grades and college students) to describe a nonsense figure to an unseen listener in such a way that the listener could find a matching figure from a set of figures in front of him. The *Ss* were told in three conditions respectively, as "I don't understand which one you mean"; "Tell me more about it"; or "I don't understand which one you mean, tell me more about it". If we take adult behavior as the standard, no adult simply repeated the apparently inadequate message or responded with silence. All adults, as well as all 3rd- and 5th-graders, either modified their initial description or provided a new description. Kindergarden children, however, tended to respond with a repetition or silence, and 1st-graders fell between the younger and older children. Jarvis (Flavell et al., 1968) obtained similar results and interpreted them as reflecting inadequate role played by the younger children.

One source of difficulty for the younger children may be the rather inexplicit feedback provided. In a later study, Peterson, Danner, & Flavell (1972) examined the responses of 4- and 7-year-old children to the different indications of the listener's feedback (the same as in the present study). The results for the implicit feedback conditions were comparable to those of Glucksberg and Krauss. Only 4 4-year-olds and 7 7-year-olds (each out of 24) gave at least one message reformulation in response to the facial expression. Seven 4-year-olds and 20 7-year-olds (each out of 24) responded appropriately to the implicit verbal feedback by producing a different message, but all subjects responded appropriately to the explicit instruction by producing a different message.

These studies, however, did not report the extent to which speakers actually described the stimulus attributes and elaborated their message in connection with the characteristics of the referent figure. Perhaps this is because the stimulus material

developed by Krauss & Weinheimer is not suitable for a detailed examination. The problem lies in the use of abstract forms differing in undefined attributes as topics of communication.

In the present study, therefore, the task in the second experiment was designed so that critical stimulus attributes might be familiar and linguistically distinguishable to young children. The results of this experiment showed that 72 per cent of the Ss in 8-age group, who had given the complete description of critical attributes, could adequately elaborate their message after the feedback requested to do so, whereas 25 per cent of those in 6-age group did. The present finding seems to be in accord with those of Glucksberg & Krauss's report that younger children, in addition to displaying limited response repertoires, failed to edit, i.e., they did not modify their messages in socially appropriate ways. At this point, however, further investigations would be necessary to examine children's ability to judge their own and another person's inappropriate communication performance and children's ability to ask more questions and to confirm more messages of others (Menig-Peterson, 1975; Robinson & Robinson, 1976; Karabenick & Miller, 1977). Moreover, it seems also necessary to investigate further referential communication behavior in relation to the developmental aspects of children's language use in linguistic structure (especially, syntactic structure).

REFERENCES

- Cohen, B.D. & Klein, J.F. 1968 Referent communication in school age children. *Child Dev.*, **39**, 597-609.
- Flavell, J.H., Botkin, P., Fry, C., Wright, J.W. & Jarvis, P. 1968 *The development of role-taking and communication skills in children*. N.Y.: Wiley.
- Glucksberg, S. & Danks, J.H. 1975 *Experimental psycholinguistics: An introduction*. N.Y.: Wiley.
- Glucksberg, S. & Krauss, R.M. 1967 What do people say after they have learned to talk? Studies of the development of referential communication. *Merrill-Palmer Quart.*, **13**, 309-316.
- Glucksberg, S., Krauss, R.M. & Higgins, E. 1975 The development of referential communication skills. In F.D. Horowitz (Ed.), *Rev. child dev. Res.*, Vol. 4. Chicago: Univ. Chicago Press.
- Glucksberg, S., Krauss, R.M. & Weisberg, R. 1966 Referential communication in nursery school children: Method and some preliminary findings. *J. exp. child Psychol.*, **3**, 333-342.
- Karabenick, J.D. & Miller, S.A. 1977 The effects of age, sex, and listener feedback on grade school children's referential communication. *Child Dev.*, **48**, 678-683.
- Krauss, R.M. & Weinheimer, S. 1964 Changes in reference phrases as a function of frequency of usage in social interaction: A preliminary study. *Psychon. Sci.*, **1**, 113-114.
- Menig-Peterson, C.L. 1975 The modification of communicative behavior in preschool-aged children as a function of the listener's perspective. *Child Dev.*, **46**, 1015-1018.
- Peterson, C.L., Danner, F.W. & Flavell, J.H. 1972 Developmental changes in children's response to three indications of communicative failure. *Child Dev.*, **43**, 1463-1468.
- Piaget, J. 1923 *Le langage et la pensée chez l'enfant*. Geneve.
- Robinson, E.J. & Robinson, W.P. 1976 The young child's understanding of communication. *Dev. Psychol.*, **12**, 328-333.
- Sato, I. 1974 Review of studies in referential communication. *Bull. Fac. Educ., Kanazawa Univ.*, **23**, 95-110. (in Japanese)

(Received September 30, 1977)