COMMUNICATION IN RETARDED ADOLESCENTS:
RESPONSE TO LISTENER FEEDBACK

by

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B. S., Kansas State University, 1972

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARTS

Department of Speech

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1973

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Major Professor
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ACKNOWLEDGEMENTS

I wish to express a special thanks to Dr. Thomas M. Longhurst, whose guidance and encouragement as major professor has been tremendously appreciated. A significant acknowledgement is also made to the other members of the thesis committee: Professors Bruce C. Flanagan, Norma D. Bunton, and Leo F. Engler, and Dr. Harry R. Rainbolt, academic advisor in Audiology.

I also appreciate the assistance of the staff and students of Parsons State Hospital and Training Center for their assistance with the present research.

For statistical advice I am indebted to Dr. Arthur Dayton of the K. S. U. Statistics Department.

Finally a personal thanks to my wife Nancy, for advice, helpful criticism, and continuous support.
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INTRODUCTION

According to Schiefelbusch (1969), speech is the speaking behavior of a single speaking individual; while communication is language events, including verbal and gestural behavior, that are interpersonal. Communication skills are important and it is a well supported fact that difficulty with communication skills is a defining characteristic of retarded persons (Keane, 1972). In spite of these acknowledgements there have been few experimental studies of communication behavior in retardates (Longhurst, 1972). There has been increasing literature on the "speech" and "listening" behaviors of retardates in various situations (Girardeau and Spradlin, 1970); however, only a few studies have examined the communication behavior of retardates within an interpersonal framework.

Rosenberg, Spradlin, and Mabel (1961) examined the amount of interaction between two retardates. They found that when two "high level" retardates, or two "low level" retardates were assembled the groups produced a relatively high rate of vocal and gestural interaction. However, very little interaction was found when two retardates were assembled if one was ranked as "high" and the other as "low."

It was demonstrated by Hollis (1966) that retarded subjects could obtain from other retardates specific information about the location of food. Hollis also found that retarded
subjects delivered reinforcement to a peer if it did not cost them to do so. This finding was replicated by Spradlin, Girardeau and Corte (1967). In these studies a subject was given two choices. One choice delivered reinforcement to himself alone and a second choice delivered reinforcement to himself and a second subject at the same time. The operator made the choice that resulted in reinforcement for both subjects on a majority of the trials, which would show that the second subject had some influence on the first subject's selection. This held true regardless of the intellectual level of either subject.

This same procedure was used to study the giving behavior of retarded subjects when it cost them all of the reinforcement on a trial (Spradlin, Girardeau, and Corte, 1969). These experimenters found that retardates did not give reinforcement to other subjects if it cost them to do so. The communication phase of this study was performed to replicate a previous study (Spradlin, Girardeau, and Corte, 1967). Cooperation on a communication task increased between members of a pair of retarded subjects if it resulted in reinforcement for both subjects.

Siegel (1967) reviewed experiments which have dealt with changes in the vocal behavior of adults when interacting with mentally retarded children. These studies, while using an interpersonal framework, did not specifically examine the communication between two retarded children.

Longhurst (1972) described a two-person communication
task which seems well suited for the study of communication in retardates and this task was used in the present experiment. This task designates one person as speaker and the other as listener. Both persons have an identical set of stimuli, and it is the speaker's task to communicate across a visual barrier so that his partner can correctly select which stimulus of an array is being described at any time. This task had previously been used to study interpersonal communication in adults (Krauss and Weinheimer, 1964b, 1967; Longhurst and Siegel, in press) and also the development of referential communication in normal children (Glucksberg, Krauss, and Weisberg, 1966; Krauss and Glucksberg, 1969).

Interpersonal communication in adults has been a long time interest of researchers (Leavitt and Mueller, 1951; Maclay and Newman, 1960; Stolz and Tannenbaum, 1963; Krauss and Weinheimer, 1964a, 1964b, 1966; Rosenberg and Cohen, 1966), and this interest in adults has recently precipitated an interest in interpersonal communication in normal children (Glucksberg, Krauss, and Weisberg, 1966; Cohen and Klein, 1968; Krauss and Glucksberg, 1969; Pascaul-Leone and Smith, 1969; Rosenberg, 1972).

Of particular relevance to the present experiment were studies that dealt with the effects of listener feedback on speaker behavior. Studies with adults have shown that adults are quite sensitive to listener feedback (Leavitt and Mueller, 1951; Maclay and Newman, 1960; Stolz and Tannenbaum, 1963; Krauss and Weinheimer, 1964b, 1966, 1967; Longhurst and Siegel, in press). However, studies with children have demonstrated the opposite,
that children are not very sensitive to listener feedback (Glucksberg, Krauss, and Weisberg, 1966; Glucksberg and Krauss, 1967; Cohen and Klein, 1968; Pascaul-Leone and Smith, 1969; Peterson, Danner, and Flavell, in press).

The purpose of the present experiment was to examine retarded adolescents' sensitivity to listener feedback. At the onset of the study, two questions were posed for evaluation of the speaker reactions to listener feedback.

1. Do retarded adolescents redescribe when their listener fails to correctly interpret the original message?

2. If they do redescribe, what type of redescription do they give?

METHOD

Subjects

Thirty-six mentally retarded residents of a state institution between the chronological ages of 10-4 and 21-9 served as subjects. Subjects were divided into three equal groups of twelve on the basis of adaptive behavior and measured intelligence level (MI-AB, I, II, III). Level classification was by the institutional psychology department and followed Heber (1959). Descriptive information for the three groups is presented in Table 1.

Experimenter

There were two college age male experimenters. Experimenter 1 ($E_1$) gave instructions and presented the stimuli. Experimenter 2 ($E_2$) was a confederate who sat opposite the sub-
<table>
<thead>
<tr>
<th>MI-AB Level Group</th>
<th>I.Q.*</th>
<th>CA (Years)</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Range</td>
<td>Mean</td>
</tr>
<tr>
<td>I</td>
<td>78</td>
<td>71-92</td>
<td>16-7</td>
</tr>
<tr>
<td>II</td>
<td>63</td>
<td>56-68</td>
<td>14-7</td>
</tr>
<tr>
<td>III</td>
<td>47</td>
<td>41-55</td>
<td>15-5</td>
</tr>
</tbody>
</table>

*Most were WISC IQ scores, approximately 15% were WAIS.*
ject, giving predetermined gestural and verbal feedback in response to the subject's descriptions.

Stimuli

The stimuli were two matching sets of eighteen nonsense line figures drawn individually on 3 x 3 inch cards. These figures were used because common names couldn't completely describe the figures. Thus, subjects were required to describe the figure rather than just give a common name. Figures with these characteristics were previously constructed by Krauss and Weinheimer (1964a) and Fehrer (1935), and the stimuli used in the present study were selected from these sources.

Experimental Arrangement

As shown in Figure 1, the room contained a divided table that allowed the subject and E₂ to see each other but not the table top immediately in front of each participant. The eighteen stimulus cards were displayed on E₂'s side of the table. There was a microphone on the subject's side that was connected to a tape recorder under the table. Facing the subject was a small stimulus tray attached to the top of the table divider. The tray was positioned so that with a slight glance the subject could get a full view of E₂'s face and upper torso. E₁ sat at the side of the table where he could place the cards in the tray, "score" E₂'s choices, and monitor the tape recording.

Procedure

In the first session each child was brought individually to an experimental room and pretested. In the pretest, a loose-
THIS BOOK CONTAINS NUMEROUS PAGES WITH DIAGRAMS THAT ARE CROOKED COMPARED TO THE REST OF THE INFORMATION ON THE PAGE. THIS IS AS RECEIVED FROM CUSTOMER.
Figure 1

Experimental Arrangement
leaf notebook with three pages was placed in front of the child. On each page there was an array of six nonsense figure drawings. The experimenter presented to the child, figures on 3 x 3 cards which were identical to the ones in the array. The child's task was to point to the matching figure in the stimulus array. This was done for all eighteen figures. This part of the pre-test was included to be sure that each child could visually discriminate the experimental stimuli (Longhurst and Turnure, 1971). Each subject was also asked to give a description of each design; and after giving the first description, was asked to describe each in a "different" way. Any subject failing either criterion was excluded from the study. Thirty subjects failed this pre-test and of this group 60% were Level III subjects.

Approximately one week later, session 2 was begun for all subjects passing the pretest. After E₁ had established rapport with the subject, he was taken to the experimental room and introduced to E₂. During instruction, the subject was shown the set of cards on E₂'s side of the table. The subject was then informed that he and E₂ were going to play a picture matching game. The subject's task was to describe the card which E₁ placed in the tray on the table divider. By presenting the stimulus on the tray in front of the subject, it was hoped he would also attend to the general vicinity of E₂'s face. The subject was told that E₂'s task was to guess which card the subject had described by pointing to the matching card in front of him. E₁ then told the subject whether E₂ had guessed correctly. It was stressed that the subject was to try as hard as possible to
help $E_2$ guess the right card and he could give any help that he felt was necessary. The order of presentation of the stimuli was randomized for each subject. The task consisted of eighteen trials divided into three six-trial blocks. These blocks were included for $E_1$'s convenience and to provide natural pauses for the child during the task. $E_2$ responded in a predetermined order to the subject's descriptions in one of four ways: positive, negative gestural, negative implicit, and negative explicit feedback. With the exception of positive feedback, the feedback types were similar to those used by Peterson, Danner, and Flavell (in press).

For the positive feedback condition, $E_2$ listened to the description and pointed to one of the pictures in front of him. $E_1$ would then say "correct," "right," or "that's right." This type of feedback was included to assure the subject some amount of communicative success and to keep him from becoming frustrated with the task.

For gestural feedback, after scanning the cards $E_2$ gave stereotyped gestures and facial expressions indicating uncertainty. Care was taken that eye contact was made before presenting the feedback. These gestures were sufficient to cause normal adults to redescribe in preliminary testing.

When implicit feedback was to be presented, $E_2$ indicated that he could not guess correctly on the basis of the description so far given, but did not tell the subject exactly what to do to help him. That is, his requests for help were implicit. $E_2$ gave him one of two prompts; either "I don't understand," or
"I don't think I can guess that one."

For explicit feedback, $E_2$ told the subject explicitly what to do to help him. He gave one of two prompts, either "Look at it again, what else does it look like?" or "Tell me something else about it."

A randomized schedule consisting of 9 positive, 3 gestural, 3 implicit, and 3 explicit feedbacks was presented to each subject. For each attempt at describing a stimulus the subject received whatever feedback was called for by the pre-determined schedule. If the subject responded with any verbal behavior to the gestural, implicit, or explicit feedbacks $E_2$ chose the correct matching card and $E_1$ told him his listener got it right. If the child did not respond by giving additional information, an interval of silence of five to ten seconds indicated to $E_1$ that he should place the next stimulus in the tray.

Data Analysis

After all of the sessions were complete, the experimenters prepared verbatim transcriptions from the tape recordings following procedures similar to Siegel's (1963). $E_1$ counted the number of feedbacks, within each negative feedback type, which resulted in any additional verbal behavior from the subject. Also he categorized each redescription as new, modified or repeated. Negative feedbacks which resulted in no redescription were classified as silence. This categorization was similar to one used by Glucksberg and Krauss (1967). $E_2$ recounted and re-categorized the transcriptions from nine subjects and agreement with $E_1$ was 100 percent.
RESULTS

Feedback Type

MI-AB Level Group means for the three feedback types were compared with a series of single-factor analysis of variance (Winer, 1962, p. 56). As can be seen in Table 2, there were significant differences among the three group means for the gestural ($F=3.89, 2/33 \text{ df}, p<0.05$) and implicit feedback types ($F=3.20, 2/33 \text{ df}, p<0.05$). These differences were analyzed further with a least significant difference procedure (LSD) (Fryer, 1966, p. 260). Groups II and III were not significantly different for all three feedback types (Table 3). Group I was significantly different from Groups II and III for gestural and implicit feedback but not for explicit feedback.

Redescription Type

A series of single-factor analysis of variance also compared the MI-AB Level Group means for each redescription type (Table 4). There were no significant differences among the group means for the number of times a feedback was followed by a repeated description. There were significant differences among the three group means on the number of times a feedback was followed by a new ($F=3.90, 2/33 \text{ df}, p<0.05$) or modified redescription ($F=7.06, 2/33 \text{ df}, p<0.01$) and also the number of times a feedback was followed by silence ($F=3.29, 2/33 \text{ df}, p<0.05$).

The results of the LSD procedure comparing the three MI-AB Level Groups are presented in Table 5. The number of new redescriptions given by Groups I and II were not significantly
### Table 2

Mean squares from the analysis of variance tables for MI-AB level group comparisons for each of the feedback types

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>a. Gestural mean square</th>
<th>b. Implicit mean square</th>
<th>c. Explicit mean square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (I vs. II vs. III)</td>
<td>2</td>
<td>5.25*</td>
<td>5.09*</td>
<td>1.08</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>1.35</td>
<td>1.59</td>
<td>.48</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05
TABLE 3

MEAN REDESCRIBITIONS IN RESPONSE TO THE THREE FEEDBACK TYPES FOR MI-AB LEVEL I, II, AND III SUBJECTS

<table>
<thead>
<tr>
<th>FEEDBACK TYPE</th>
<th>MI-AB LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Gestural</td>
<td>1.92</td>
</tr>
<tr>
<td>Implicit</td>
<td>2.25</td>
</tr>
<tr>
<td>Explicit</td>
<td>2.92</td>
</tr>
</tbody>
</table>

Note — Means sharing a common line within a feedback type row are not significantly different at the .05 level.
<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>a. New mean square</th>
<th>b. Modified mean square</th>
<th>c. Repeated mean square</th>
<th>d. Silence mean square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (I vs. II vs. III)</td>
<td>2</td>
<td>8.19*</td>
<td>15.53 **</td>
<td>6.03</td>
<td>21.03*</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>2.10</td>
<td>2.20</td>
<td>2.80</td>
<td>6.39</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05
** p < .01
<table>
<thead>
<tr>
<th>Redescription Type</th>
<th>MI-AB Level I</th>
<th>MI-AB Level II</th>
<th>MI-AB Level III</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
<td>2.00</td>
<td>2.83</td>
<td>1.58</td>
</tr>
<tr>
<td>Modified</td>
<td>3.50</td>
<td>1.67</td>
<td>1.42</td>
</tr>
<tr>
<td>Repeated</td>
<td>0.58</td>
<td>0.33</td>
<td>1.67</td>
</tr>
<tr>
<td>Silence</td>
<td>1.92</td>
<td>4.25</td>
<td>4.17</td>
</tr>
</tbody>
</table>

Note — Means sharing a common line within a redescription type row are not significantly different at the .05 level.
different. The number of new redescriptions given by Group III subjects was significantly different from Group I and Group II. The mean number of modified redescriptions given by Group I was significantly different from the mean number of modified redescriptions given by Groups II and III. Table 5 also shows that there were differences in the mean number of times the feedback was followed by silence or no redescription. The means for Groups II and III were not significantly different; however, the mean number of instances Group I followed listener feedback with silence was significantly different from the other two groups.

DISCUSSION

The present experiment was designed to examine retarded adolescents' sensitivity to listener feedback. Retardates of different intelligence levels were placed in the role of speaker in an interpersonal description task and their reaction to feedback indicating communication failure was examined. Significant differences were found in the number of redescriptions given by the three groups of subjects for the gestural and implicit feedback types. The results suggest that Level II and III subjects were less effective than Level I subjects in interpreting gestural and implicit listener feedback, and often did not give redescriptions following these types of listener feedback. This failure to give help to the listener might be explained in three ways. First, the retarded subjects did not understand the meaning of the feedback and thus did not know what type of help to give. Second, they understood the feedback but simply did
not know what to do to help the listener. Finally, they understood the feedback, but didn't want to give help to the listener. The present research found that lower level subjects (Level II and III) failed to redescribe following gestural and implicit feedback. The specific reason why they failed could not be determined from the present design.

When the data were analyzed by type of redescription significant differences were found among the three MI-AB Level Groups. These differences were found to be in the number of new and modified redescriptions and also in the number of feedbacks followed by silence. Level I and II subjects gave more new redescriptions than Level III subjects. Level I subjects also gave more modified redescriptions than Level II and III subjects. However, Level I subjects followed the feedback by silence fewer times than either Level II or Level III subjects. Level I subjects were more efficient than Level II and III subjects in the description task if, as we assume, a new or modified redescriptions is the most efficient form of supplying additional information to the listener.

The performance of Level II subjects was quite similar to the performance of Level III subjects; however, Level II subjects did give significantly more new redescriptions than Level III subjects. Similarity between the performances of Level II and III subjects can be partially attributed to the pretest procedures. Of the subjects who failed to meet criterion on the pretest, approximately 60% were Level III subjects. Subjects probably failed the pretest for various reasons but it is
reasonable to assume that the procedures selected the most able Level III subjects. This selectivity by pretesting raised the overall performance of Level III subjects in the experiment, but the pretest was necessary to eliminate subjects that would make visual discrimination errors in the experiment. These discrimination errors might be naively attributed to communication difficulties (Longhurst and Turnure, 1971). The most important aspect of the pretest was that it excluded subjects who were not able to give a second description to each stimulus when asked to do so. With these subjects eliminated from the communication task, failure in the task could be attributed to difficulties in interpreting listener feedback and not to difficulties in formulating a second description.

It would be a reasonable assumption that the amount of interaction between speaker and listener could be varied by replacing $E_2$ with a younger person or with someone that is familiar with the subject. A number of studies reviewed by Siegel (1967) have shown that the verbal behavior of adults is influenced by the characteristics of each specific institutionalized retarded child with whom they interact. The inverse could also be true, the vocal or verbal behavior of retarded children might be influenced by the characteristics of each specific adult or listener with whom they interact.

The experiment might have been strengthened by recording pointing behavior for each subject. Glucksberg and Krauss (1967) placed different age subjects (kindergarten, first, third, fifth grade children, and college students) in a speaking situation
similar to the one in the present experiment. They reported that only kindergarteners, and first graders "point," that is, said things like, "It goes like this," while tracing the design with a finger. In the present experiment the table divider separating the speaker and listener made this type of response quite inappropriate. This type of response seemed to be characteristic of Level III subjects; however, no formal data on pointing behavior was collected.

The subject may have repeated the same description more loudly if he interpreted the listeners difficulty as an audition problem. Peterson, Danner, and Flavell (in press) asked this same question when placing normal pre-school and first graders in a similar communication task. These authors reported that only a few repeated their messages and none of them did so more loudly. By informal observation of the subjects in the present experiment, it seemed that this tendency to repeat a description more loudly did exist.

The experimental situation used in this study may be helpful for future research in the training of subjects to interpret different forms of listener feedback, whether it be gestural, implicit, or explicit in form. Training subjects to improve description and redescription skills by training them to pick out relevant attributes of a referent for description may be another area for future experimentation.
REFERENCES
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Siegel, G. M. Interpersonal approaches to the study of communication disorders. *Journal of Speech and Hearing Disorders*, 1967, 32, 112-120.


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ABSTRACT

Retarded adolescents' sensitivity to listener feedback was studied using an interpersonal description task. Thirty-six retarded speakers were asked to describe nonsense line figures for a confederate adult listener, so that the listener could select the same stimuli from an array. The listener responded to the descriptions with a predetermined random order of success and failure. Communication failure was reported to the speaker by three methods: gestural, implicit, and explicit feedback. Redescriptions given by the speaker following each type of listener feedback were counted and analyzed as to type of redescription. Significant differences were found among intelligence level groups for number of redescriptions after communication failure and also for type of redescription.