

Facilitating a Functional Use of Requesting of a Child with Mental Retardation: In a Case under Errand Condition

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In this study, it was attempted to facilitate a functional use of vocal requesting of a child with mental retardation under errand situation. Errand situation was defined that a trainer (director) asked to the children to take a certain object from another trainer (supplier). And the functional use of requesting was also defined that the child emitted a rejecting response such as “That’s not it” when the supplier offered a incorrect object to the child’s response. Results showed that the child could be able to use vocal responses as mand just after the intensive training where the child’s errand behavior was reinforced by a object, instead of verbal praise and edible, that the child handed to the director. The results were discussed in terms of the stimulus value of the director’s request (discriminative stimulus).

Key Words: mand, functional use of requesting, errand situation, “response-reinforcer” relation, stimulus value

INTRODUCTION

Recently, in expressive speech training for children with developmentally handicapped, many studies were focused on establishing and facilitating the functional use of vocal requesting (Halle, Marshall, and Spradlin, 1979; Simic, and Bucher, 1980; Yamamoto, and Mochizuki, 1988; Charlop, Schreibman, and Thibodeau, 1985; Fujikane, 1988, 1989, 1992). One of the important reasons for targeting vocal requesting is that if the children would acquire a vocal demanding, the children’s opportunities of obtaining positive reinforcers in daily living should be increased, because the listener (adults) would become able to identify the children’s reinforcer easily (Fujikane, 1997).

One of the earlier studies of establishing verbal demanding, Simic and Bucher (1980)

reported that their children did not use acquired vocal response in daily settings. One of the reasons on the failure to obtain generalization was considered that the verbal responses the children acquired did not function as demanding (Simic and Bucher, 1980; Yamamoto and Mochizuki, 1988). Such difficulties were also reported by Carr and Kologinsky (1983). These results indicated that to acquire verbal topographies of demanding form (e.g., “give me -”) is one thing, and to use it functionally is another. And many researchers were concerned on the technology how to establish functional requesting (Halle, Marshall, and Spradlin, 1979; Yamamoto and Mochizuki, 1988; Fujikane, 1992).

In this point, Yamamoto and Mochizuki (1988) mentioned if the stimulus object being requested by the child was presented as discriminative stimulus (Simic and Bucher, 1980), the relationship between the antecedent and response was “*tact*” rather

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than “*mand*” . So, they were proposed that the demanding training should be executed under the condition where no stimulus object was prepared as discriminative stimulus (Yamamoto and Mochizuki, 1988; Carr and Kologinsky, 1983). And Yamamoto and Mochizuki (1988) examined such establishing operation (errand situation) as the trainer (director) asked to the children to take a certain object from another trainer (supplier). The supplier did not present the object unless the child emitted the name of object orally. The sequence of the children’s verbal and non-verbal behavior (behavioral chain of errand behavior) was reinforced by a verbal praise and edible as well.

Although, in Yamamoto and Mochizuki’s study (1988), the child’s emission of the object name yield the supplier’s offering of the object which was correlated the verbal response of the child. However when the experimenter offered a incorrect object, which was not correspond to the name the child used, the child received it. They concluded that because the child’s vocal response was not specify its reinforcer, the response could not be classify as *mand*. And an additional training, which taught the child to use “That’s not it” when the supplier offered incorrect object, was needed.

These results might be considered that whether the stimulus objects, being requested by the child, were presented was not implicit determiner on making the verbal response to function as *mand*. In fact, Fujikane (1992) reported that if two or more stimulus object were presented as discriminative stimulus (selective demanding situation), child’s utterances was likely to function as demanding, because the selectivity (one from several objects being presented) was considered one of the prototype of demanding (Fujikane, 1992).

Under this selective demanding situation,

child selected the one of several objects by oneself. Because this contingencies of reinforcement could be said that the child uses demanding in order to satisfy the child own request, the trainer should targeted to use demanding under this situation at first as described above.

Once the child became able to use demanding under selective demanding situation, it is important for the child to use it under various situations including errand one. Under this situation, the child has to use demanding in order to satisfy other’s request. It was suggested that the satisfying other’s demanding increases the probability of occurrence of other’s same behavior (Winokur, 1976; Fujikane, 1999). As a result, the child probability of obtaining positive reinforcer when the child used demanding under selective situation would be increased (reciprocal altruistic behavior).

So the first purpose of this study was to examine whether the child could use verbal response under errand situation functionally if the child became use of it under selective demanding situation. And the functional analysis of verbal response under both selective demanding and errand situation were executed. In order to determine whether the vocal response functioned as demanding, such procedure as the trainer offered an object which was not correspond to the name the child used was attempted in this study (Yamamoto and Mochizuki, 1988). If the child would emit such refusal expression as “That’s not it”, the name of the object the child emitted considered to function as demanding, because the verbal response *specifies* its reinforcer (Skinner, 1957).

Another research interest in this study was to identify one of the factors which was concerning on the facilitating the functional use of demanding, especially on the use of demanding under errand situation. In

order to identify the factor on promoting the functional use of demanding under errand situation, the environmental stimulus under errand situation was manipulated in this study.

The environmental factor being hypothesized in this study was that the relationship between response and reinforcer. Although Yamamoto and Mochizuki (1988) used the verbal praise and edible reinforcer for errand behavior, which was considered as a reinforcer under daily settings, in this study, the child was allowed to have play with a object which the child got from the supplier just after the child handed it to the director. In other words, contingencies of reinforcement of errand behavior was arranged so as the reinforcer (play with a object) to be a purpose of errand behavior itself. Because the contingencies of reinforcement of errand behavior itself became as same as those of demanding, somewhat effects were expected on facilitating the functional use of demanding under errand situation.

METHOD

Subject

5 years and 8 month old boy with mental retardation was participated in this study. His developmental age and developmental score was 3 years and 2 month old and 55.9, respectively, which was obtained by TSUMORI-INAGE Infant Developmental Questionnaire (from 1 to 3 years old). The child could emit the labels vocally for all of the objects used in this study.

General procedure

Preference measurement

20 objects, some of which were reported from the mother to be preferred by the child, were prepared on the floor of the playroom.

The child could access them freely with two restrictions; one at a time and the child was not allowed to access same object consecutively. Trial began with the trainer's "You can play with a toy which you want." The child was allow to play with a toy for two minutes approximately. The location of objects was rearranged before the next trial.

Under such conditions, 4 objects, a soap bubble, a balloon, a water gun and toy helicopter, the child most likely to access was defined as high preferred objects. On the other hand, 4 objects, a ball, a robot, a toy flight machine, and a toy camera, the child never accessed were defined as low preferred objects. The child had already acquired both expressive and receptive label for all the stimulus object selected above.

Selective demanding situation

In this situation, typically, the 4 of 8 objects selected from the preference measurement were used. The 4 stimulus objects presented varied from trial to trial. For example, on a certain trial, all the objects available could have been low preferred.

The 4 objects were presented on the shelf. Although the child could see them, the child could not obtain them by himself. The trainer stood by the shelf silently. When the child emitted the object name, the trainer handed the object to the child. The child and trainer then played with it for approximately 1 minute. Because the child could not use vocal response under this situation (the child usually pointed to the object), following pre-training was executed under this situation.

Pre-training to say name under selective demanding situation

Using the objects other than those described above, the child was trained to emit name of the objects under selective demanding situation. If the child emitted the name of the object, the trainer imitated the child's utterance, handed it to the child,

and the child and trainer played with it for approximately 2 minute. If the child pointed to one of the object but did not use the appropriate name of it, the trainer modeled it using a time delay procedure (Halle, Marshall, and Spradlin, 1979).

Errand situation

In this situation, objects were not in view.

Director sat on the floor in the playroom, and the supplier also sat on the opposite side of the floor. The distance between two trainer was approximately 8 meter.

Director said to the child "Bring - from that teacher". When the child emitted the object name, the supplier handed the object to the child. When the child played with the object after receiving it, another adult verbally and/or physically prompted the child to hand the object to the director, at which the director delivered an edible and verbal praise such as "Thank you".

Experimental condition Selective demanding situation

Baseline

The first six trials of the first session of this phase were introduced as a brief baseline under selective demanding situation. When the child requested an object, the trainer took an object other than the one the child requested, and said "This one?". If the child did not use the refusal expression (e.g., "That's not it") and moved his hand toward the object, the trainer gave it to the child. If the child emit the refusal expression, the trainer gave a correct object to the child.

Training

Just after the brief baseline described above, the intervention was introduced. The procedure used in this phase was almost the same as that used in pre-training with one exception. That is, if the child did not use the refusal expression and moved his hand toward the object when the trainer offered

the incorrect one, the trainer presented the object name while displaying the incorrect object, as a prompting stimulus for refusal expression.

Although, typically, the trainer gave a correct object to the child when he used the refusal expression, in the 4th and fifth session, there was one and two occasions, respectively, that the trainer offered another incorrect object again. In addition, there were one to five trials in each session in which the trainer offered the correct object on the child's request, to determine whether the child used refusal expression only when the trainer offered the incorrect object.

There were 7 to 16 trials in each session (mean = 11.8), and there were 6 to 11 opportunities (mean = 8.8) that the trainer offered the incorrect object.

Errand situation

Baseline

The procedure used in this phase was almost the same as that of Yamamoto and Mochizuki (1988). That is, the supplier gave the child an object other than that he requested. These trials were interspersed among the trials where the supplier gave a correct object to the child. The number of trials which the supplier gave a correct object to the child was 4, while incorrect object to the child was 3. The combinations of object requested and incorrect object that the trainer offered were (L/L) where low preferred object name was directed and incorrect low preferred object was offered by the supplier, (H/H) where high preferred object name was directed, and high incorrect preferred object was offered by the supplier, and (L/H) where low preferred object name was directed, and incorrect high preferred object was offered by the supplier. The purpose of this step was to make clear whether the name of the object the child used functioned as a request.

If the child accepted the object offered by the supplier, the verbal response did not function as a request, because it did not specify its reinforcer.

Measurement of the duration for completing errand behavior

The procedure was the same as that described in baseline with two exceptions. That is, the supplier handed the picture card which the object was drawn on. Another was the object itself. In this phase, the objects used were not the same those used in the experiment. This measurement allowed the experimenter to assess the time duration which was needed to complete one errand trial. Because the child often played with a object just after the child got it from the supplier, the duration which was necessary for errand was not clear.

This measurement was considered to be important, because the child often played with a toy before he handed it to the director, which might be a negative effect to use verbal response as requesting under errand situation.

Probe 1 under errand situation

After the training under selective demanding situation, probe was executed whether the child use vocal response as request. The procedure was the same as that of baseline under errand situation. The supplier offered the incorrect object. Both the order of the director's direction of the object name and of the supplier's offering object were randomly pre-determined across preference. That is, there were four types of combination; (H/H), (L/L), (L/H), and (H/L) where high preferred object name was directed and low preferred incorrect object was offered by the supplier.

Regardless of the emission of child's "That's not it", the director provided the edible and verbal praise for the child's errand behavior. As same as previous selective

demanding situation, there was a few trials that the trainer offered correct object, and there was a few trials that the trainer offered another incorrect object just after the child's emission of refusal expression. The numbers of trial were 6 to 16 (mean = 10), and the numbers of opportunity the supplier offered the incorrect object were 6 to 13 (mean = 10.5).

Intensive training under errand situation

The stimulus objects used in this phase were only high preferred objects. And the supplier always offered the object which was correspond to the name the child used.

In addition, the object was handed to the child not to have play with it until the child handed it to the director. That is, the object was in the plastic bag and it was tied. So from this step, prompter did not participated. Just after the child handed it to the director, child was allowed to have a play with it. The number of trials were 10 in each sessions.

Probe 2 under the errand situation

The procedure of this phase was also the same as that of probe 1 with one exception. That is, as same as intensive training, the object the supplier offered was in the plastic bag. And from 17th session, it was not tied. The numbers of trial were 2 to 12 (mean = 9.8), and the number of opportunities the supplier offered the incorrect object were 2 to 17 (mean = 13.0).

Measurement of generalization across trainer

In order to assess the generalization, new two trainers, who did not play a role of director nor supplier, participated in this measurement. The procedure used in this step was same as that of presentation of the incorrect object under the errand situation 2. Both the numbers of trial and the numbers of opportunity the supplier offered the incorrect object were 6.

Data collection and reliability

Throughout of this study, all of the training was videotape-recorded. And all of the sessions, the child's "That's not it" responses were scored as correct or incorrect by two observers other than trainer, independently. The observation was continued until interobserver's agreement reached to 100% for all sessions.

RESULTS

Results showed through Figure 1 through Figure 6. And the child never used "That's not it" for the correct object throughout the experiment. And throughout the experiment, the child could use "That's not it" when the supplier offered the incorrect object two or more times within a trial if the child could refuse the first incorrect object.

Selective demanding situation

Baseline

In baseline, the child did not show "That's not it" response when the trainer gave him a incorrect object. That is, the child always received the object the trainer offered regardless the object was correct or not.

Intervention

After introducing intervention, the child emitted "That's not it" at 83.3%. Although, in third session of this phase, the child's frequencies of "That's not it" was slightly decreased when the trainer offered the high preferred incorrect object when the child requested low preferred object (50% of correct responding; Figure 3), the child showed perfect correct responding at the second and the final session of this phase.

Errand situation

Baseline

During baseline, no "That's not it" response was observed. That is, as same as the

baseline under selective demanding situation, the child accepted the incorrect object in all trials.

Probe 1 under errand situation

Probe condition after the intervention under selective demanding situation, the child began to use "That's not it" response at 69.7%. In this phase, high percentages of correct response were observed when the supplier offered the low preferred incorrect object (Figure 6). On the contrary, the tendency of percentages of correct responding were slightly differed when the supplier offered the high preferred incorrect object (Figure 5). That is, when the director requested a high preferred object and the supplier offered the high preferred incorrect object, the child's correct responding was gradually increased through this phase (25% to 100%). When the director's request was low preferred object and the supplier's presentation of incorrect object was high preferred one, the child's correct responding was gradually decreased at the 50% level.

Probe 2 under errand situation

After the intensive training under errand situation, high percentages of the child's correct responding were obtained (94.1% to 100%). The first session of this phase, the child did not emit "That's not it" only once when the director requested high preferred object while the supplier offered high preferred incorrect object (88.9% correct responding).

Although it was observed only 17 session, the child refused to play with a toy after when he handed the object to the director (75%), the director gave the verbal approval ("Thank you") and edible as a reinforcer to the child.

Measurement of generalization across trainer

In this phase, the child showed 100% of correct responding.

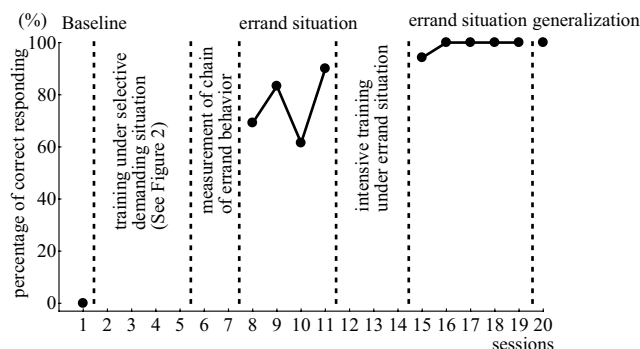


Fig.1 Total rate of the rejecting response (That's not it) when the supplier offered the incorrect object

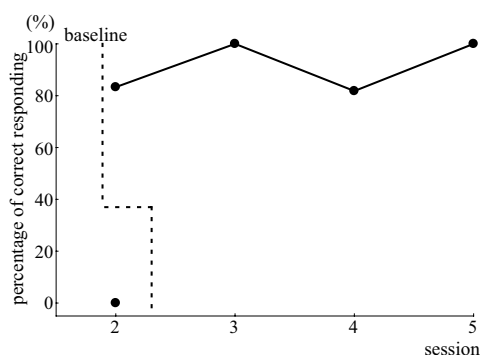


Fig.2 Percentage of correct "That's not it" responding under selective demanding situation

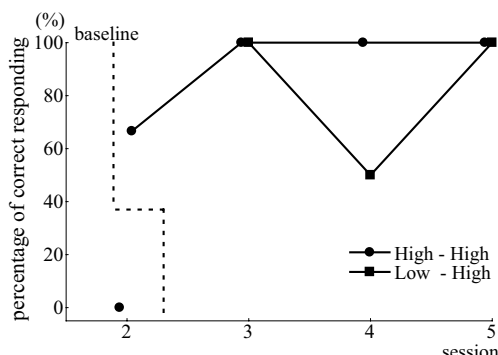


Fig.3 Percentage of correct "That's not it" responding under selective demanding situation (High-High means that the director requested a high preferred object to the child, and the supplier offered a high preferred incorrect object)

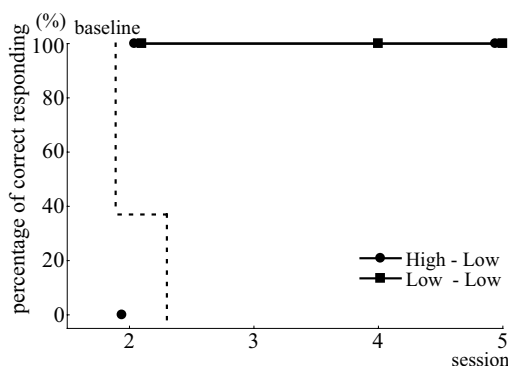


Fig.4 Percentage of correct "That's not it" responding under selective demanding situation (High-Low means that the director requested a high preferred object to the child, and the supplier offered a low preferred incorrect object)

DISCUSSION

Selective demanding situation

In baseline, the child could not use “That’s not it” response under selective demanding situation. Because even when the child requested high preferred object and the trainer offered the low preferred incorrect one (Figure 4), the child accepted it, it is difficult to classify child’s utterance into mand. So, it could be said, which was opposite to the Fujikane’s mention (1992), that selective demanding situation did not always make a verbal response function as demanding even if the child use verbal response with his pointing response.

Unfortunately, there was only a few study to execute such a functional analysis (Yamamoto and Mochizuki, 1988; Fujikane, 1992), this result indicate the necessity of functional analysis of verbal response using the same procedure of this study.

In intervention where the trainer presented the object name the child used when the trainer offered incorrect object, the child’s percentage of emission of “That’s not it” response was dramatically increased at the first session of this phase. Although at the third session, the percentage was slightly decreased, the child never accepted low preferred incorrect object. So it could be said that the child’s verbal response began to function as mand. Furthermore, the child also could use “That’s not it” response again when the trainer offered a incorrect object after the child used “That’s not it”. In addition, the child did not use “That’s not it” when the trainer offered a correct object. These result showed that the child verbal request truly functioned as mand.

These results revealed the effectiveness of the intervention of this study. Because the child had already acquired the receptive label for the object used in this study, presentating

both the object name and incorrect object made the child easy to use “That’s not it” response. As a result, the child’s functional use of utterance as mand was considered to facilitated under selective demanding situation.

Errand situation

Although the child did not use “That’s not it” at baseline, the percentages of correct responding was greatly increased at the first session under probe 1 condition (Figure 1). Because Probe 1 was executed after the intervention under selective demanding situation, it was considered that it was a generalization effect. However, there was a problem at the first session of this phase. That is, the correct responding of “That’s not it” for H/H was low in percentage. The child was accepted high preferred incorrect object frequently, it could be said that the child performed a vocal response based upon his own request instead of the director’s request.

On the other hand, the correct responding for L/H was high, so that the child performed a vocal response in order to satisfy the director’s request. Furthermore, the child did not requested high preferred object when the low preferred object was requested (L/L).

These results indicate that the director’s request as a discriminative stimulus has a problem in terms of its stimulus function. Fujikane (1992, 1997) described that if the antecedent functioned as a discriminative stimulus for demanding behavior, vocal response should function as mand. In this study, although director’s request functioned as a discriminative stimulus for child’s requesting behavior, for the case of high preferred object request of the director was apt to function as a discriminative stimulus for performing the requesting behavior based upon the child’s own request.

And these results also indicate the

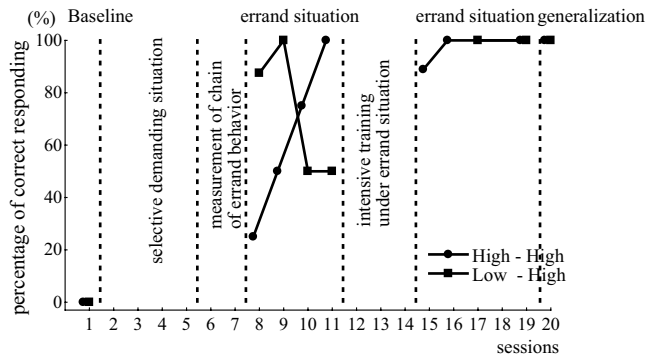


Fig.5 Percentage of correct "That's not it" responding ("High-High" means that the director requested a high preferred object to the child, and the supplier offered a high preferred incorrect object)

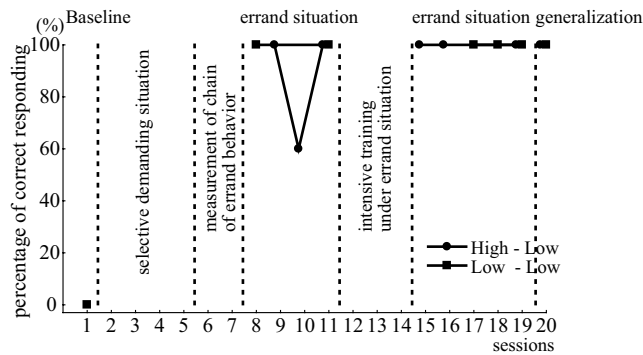


Fig.6 Percentage of correct "That's not it" responding ("High-Low" means that the director requested a high preferred object to the child, and the supplier offered a low preferred incorrect object)

following: That is, Yamamoto and Mochizuki (1988) concluded that, at first, their children's use of vocal utterance could not classify into mand because they did not use refusal expression for incorrect object. But at the probe 1 in this study, as described above, the child's vocal utterance could classify into mand. So it was considered that when the researcher attempt to do functional analysis of mand, it is necessary that the stimulus function of antecedent event take into account. Skinner (1957) defined the mand as a verbal response which is reinforced by a characteristic consequence, and therefore under the functional condition of

relevant condition of deprivation or aversive stimulation. In other words, the class of reinforcer will be changed by the stimulus function of antecedent events.

And then when the probe 1 was proceeded, the child responding was changed when the supplier offered the high preferred incorrect object. That is, when the low preferred object was requested, the child's percentage of correct responding was decreased to 50%, while when the high preferred object was requested, the child's percentage of correct responding was increased to 100%. Former result reveals that the director's request as a discriminative stimulus was more functioned

as that for performing requesting behavior based upon the child's own request. But it has also a function as a discriminative stimulus for performing requesting behavior based upon the director's request, because he frequently accepted low preferred object when low preferred object was requested by the director.

But from the latter result, it is difficult to determine which stimulus function (child's own request or the director's request) the discriminative stimulus (director's request) had, because the director's request and the child's request was same. That is, if the child's performance might be controlled by the director's request, the child can use "That's not it" when the supplier offered the incorrect object. And it also possible that if the child's performance might be controlled by the child's motivation, which might be supplementary strengthened by the director's verbal stimulus (request as a discriminative stimulus), the child could use "That's not it". And it is very difficult to determine which variable might affect to the child's performance.

However, if the performance for L/H was taken into account, there was some possibility that the child's requesting behavior was mainly controlled by the child's own request (The stimulus function of the director's request was the discriminative stimulus based upon the child's own request.), because the contingencies of reinforcement for the child's performance was the same for both discriminative stimuli. It is difficult to think that the same contingencies might produce the different effects for performance.

One of the factors which negatively affected over child's response was that the child did play with a object before he handed to the director. Although another adult attempted to avoid this play, the child frequently performed a play with a toy

(Figure 7). The child's accepting both of correct and incorrect object were directly reinforced by this play before he handed it to the director, the child was apt to use requesting behavior based upon his own request (the director's request was more functioned as a discriminative stimulus for performing requesting behavior based upon his own request).

So, in this study, in order to function the director's request as a discriminative stimulus for the requesting behavior based upon the director's request, following intensive training was executed. That is, the director always requested high preferred object, and the supplier also always offered correct object. Furthermore, the child was allowed to play with a object after he handed it to the director.

Results showed that the child became able to use requesting behavior in terms of satisfying the director's request. That is, in the probe 2, the child used "That's not it" response almost perfectly. And it could be said that the intensive training of this study was effective.

It was considered that by employing a play with a object as a reinforcer for errand behavior, the errand behavior itself was reinforced by a characteristic consequence which was specified by the director's request (discriminative stimulus), which is a same contingencies of reinforcement as mand. And the director's request for high preferred object acquired the stimulus function as a discriminative stimulus for requesting based upon the director's request.

The function of director's request for high preferred object was considered to have a discriminative stimulus for requesting behavior based upon his motivation at the probe 1. And the function of director's request for low preferred object had at least the same function. So it could be said that

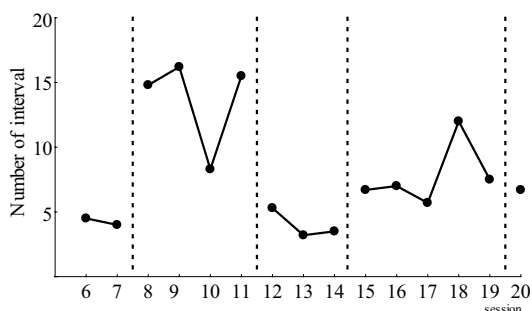


Fig.7 Mean numbers of interval which was necessary to perform one trial under errand situation
(1 interval was 5 seconds)

the these two discriminative stimuli was at least a equivalent for requesting behavior. It is well known that one stimulus get a new stimulus function, other stimuli which is equivalent to the original one also acquire the same stimulus function (Spradlin, Cotter, Baxley, 1973; Spradlin and Saunders, 1984). So it could consider that the director's request for low preferred object also got the same stimulus function as that for high preferred object.

In probe 2 condition, the director's requests were all low preferred object. The child played only 3 trials where 12 trials were conducted. These trials, director provided the verbal praise and edible as a reinforcer for errand behavior. This result suggests following two possibilities; One is that the child's errand behavior and his use of requesting behavior could maintain by the reinforcer other than play with a object. Another was that the preference for object used in this study was not changed throughout the study.

And throughout the experiment, the child did not use refusal expression for correct object. Furthermore, the child could refuse incorrect object when the supplier offered the incorrect object two or more time within a trial. These results revealed that the child's use of refusal expression was not the

stereotyped.

And from the results of generalization measurement, generalization across people was obtained.

In sum,

1. Even if the child used verbal response with his pointing response to the object under selective demanding situation, the verbal response is not necessarily functioned as mand. That is, there was a case that the response did not specify its reinforcer.
2. Facilitating the use of demand under selective demanding situation partly facilitating the use of demanding under errand situation (generalization).
3. In order to facilitate the functional use of demanding under errand situation, it was effective to modify the response-reinforcer relationship so as the reinforcer became the purpose of errand behavior itself. That is, it was effective to adopt the play with a toy, instead of verbal praise and edible, as reinforcer for errand behavior to facilitate the functional use of demanding.

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