EFFECTS OF CONCURRENT AND SERIAL TRAINING ON RECEPTIVE LABELING BEHAVIOR OF MENTAL RETARDATES

by

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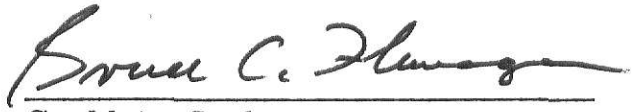

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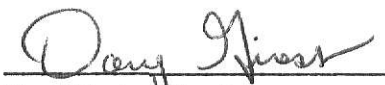

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CHAPTER I

INTRODUCTION

There has been much concentration in the past two decades on the analysis of the language training of retarded children through the use of operant methodology. During this time there has been considerable research supporting the establishment and maintenance of imitative and expressive speech (Baer, Peterson, and Sherman, 1967; Baer, Guess, and Sherman, 1972; Guess and Baer, 1973; and Risley, Hart and Doke, 1972). Recently emphasis has been moving to a more discrete analysis of components pertaining to specific procedures. Procedures have been analyzed for the establishment of adjective usage (Baer and Guess, 1971; and Hart and Risley, 1968), generative verb usage (Shumaker and Sherman, 1970), prepositional usage (Sailor and Taman, 1972), and plural morpheme usage (Guess, Sailor, Rutherford and Baer, 1968; and Sailor, 1971). Several researchers have taken steps toward establishing complete and validated language training programs for the mentally retarded (Bricker, 1973; Guess, Sailor, and Baer, 1972; and Stremel, 1972).

From these and other previous investigations it has become evident that language instruction for the mentally retarded is a very time consuming, complex task. There are still many more questions which need to be answered before expedient language programming procedures are identified.

This study compared two methods of training individual recognition responses (receptive labeling behavior). The first method, serial training,

involves training one item to a specified criterion, then a second item to criterion, and finally, a third item. For example, when training three objects serially, cup, hat, and spoon, the subject chose only cup from the group of three items correctly to criterion, then only hat to criterion, and then spoon. The second method, concurrent training, includes training all three items simultaneously to a specified level of criterion performance. The subject under concurrent training reaches criterion with hat, spoon, and cup by scrambled presentations of all three objects.

A previous study concerned with this question (Schroeder, 1972) compared the effectiveness of these two procedures in word imitation training with retarded children. Probes were administered to measure the extent of imitation generalization to previously untrained words. For this particular response, Schroeder found that neither procedure was particularly more efficient than the other in terms of number of trials required to reach criterion, but that probe words administered following concurrent training showed a greater increase in accurate imitation than those administered after serial training. Therefore, Schroeder concluded that concurrent training may be advantageous in establishing a functional behavior class of accurate imitation without sacrificing training trials. In the present study, concurrent and serial training methods were again compared, but the response was receptive labeling, not imitation.

Receptive labeling was selected as the mode of response because it is basic to a child's language acquisition, as reported by McCarthy, 1954

and Fraser, Bellugi, and Brown, 1963. In comparing the methods of stimulus presentation it was hypothesized that serial training would achieve performance criterion more quickly than concurrent training. Thus, one measure to be used in comparing the methods was the total number of responses, correct and incorrect, required to reach a predetermined level of correct performance. The other dependent variable used in the study investigated the degree to which the child could identify the learned items, when mixed with new, untrained stimuli items. It was hypothesized that more correct labeling would occur with subjects trained under the concurrent condition.

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CHAPTER II

METHOD

SUBJECTS:

The criterion used in the selection of subjects included the following: evidence of pointing behavior, cooperation in the experimental setting, responsiveness to reinforcers, and availability for two fifteen-minute sessions daily.

Three subjects were selected for the study: (1) Julie, an 8-yr-old girl had been assessed as functioning at the -3 Adaptive Behavior level (AAMD Standards) and the -4 Measured Intelligence level (AAMD Standards); (2) David, a 16-yr-old boy had been assessed as functioning at the -3 Adaptive Behavior level and the -4 Measured Intelligence level; and (3) Billy, also a 16-yr-old boy, had been assessed as functioning at the -3 Adaptive Behavior and Measured Intelligence levels. All subjects were residents of Kansas Neurological Institute, a residential facility for the mentally retarded.

These subjects were selected from a pool of some thirty residents suggested as possible subjects by the psychology and speech pathology staff at Kansas Neurological Institute. A vast majority of the subjects were eliminated from the study because of scheduling conflicts. Others were eliminated because of visual, auditory, and/or motor impairments.

TRAINING MATERIALS:

Stimulus objects for training were 5" by 8" cards consisting of printed, ambiguous geometric forms. The forms were drawn with a black felt tip marker on white cards. Some forms were adapted from those used by Kraus and Weinheimer, 1964, and Fehrer, 1935. Many forms were originals drawn by the experimenter. The cards were placed on an 8 1/2" by 11 1/2" sheet of black construction paper and covered with a clear plastic sheet protector (see Appendix A for an example of the stimulus designs).

The cards were divided into trios of three cards; with each card in the trio assigned a one syllable, consonant phoneme/vowel phoneme/ consonant phoneme (hereafter referred to as CVC), nonsense label, (see Appendix B for a list of the CVC labels used in this study). No initial, medial, or final phonemes were repeated within the CVC labels assigned to the geometric forms of one trio.

Selection of the CVC labels began with a computer compiled list of all possible consonant phoneme/vowel phoneme/consonant phoneme combinations using 20 consonants and 10 vowels from the International Phonetic Alphabet. All combinations which the experimenter could not pronounce, or which contained the same initial and final consonant were deleted from the list. This list was then recorded on cassette tapes. Three listeners were given these cassettes, and a printed list of the CVC combinations. They were instructed to listen to the tapes,

and judge which combinations were not familiar as words. That is, any combination was deleted if it sounded like a complete or part word, or reminded the listener of a word. These three adapted lists were then coordinated. The final list, which contained the CVC combinations used as nonsense labels in the study, had only those combinations which all three listeners agreed were unfamiliar.

Nonsense materials were used in this study to insure that the training stimuli were new to the subjects and that the subjects were not receiving training on the stimuli outside the experimental setting.

EXPERIMENTAL PROCEDURES:

All subjects participated individually in 15-minute sessions twice daily, once in the morning and once in the afternoon. The sessions were conducted with the subject seated opposite the experimenter in a room on the unit where the particular child resided. Only the experimenter and child were present in the room except when inter-observer reliabilities were taken. Reinforcement for Julie and David consisted of bits of food or drink coupled with verbal praise from the experimenter. Reinforcement for Billy consisted of verbal praise from the experimenter.

Pretraining. Two pretraining phases were conducted with each subject. The purpose of the first phase of pretraining was to establish responding in the experimental environment. In this phase, stimulus objects consisted of four, 5" by 8" cards on which were drawn outlines of common noun objects (e.g. cat, tree, ball, and cup). The cards were

placed individually on the table in front of the subject. The subject was then asked to "Point to (object)." A correct pointing response was followed by reinforcement, and an incorrect or no response after five seconds was followed by a "no", and modeling of the correct response from the experimenter (not reinforced if imitated by the subject). Following approximately a five second pause during which the card was removed from the subject's vision and replaced, the next stimulus card was presented. Two correct responses to each object were required before a new card was presented. When all four cards were trained, phase two of the pretraining was initiated.

The purpose of the second pretraining phase was to establish appropriate pointing behavior in the presence of the abstract, nonsense stimuli used in the training phase.

Stimulus objects for the second phase consisted of four, 5" by 8" cards on which were printed the ambiguous geometric figures described earlier as training materials. The forms had been arbitrarily assigned one syllable, CVC nonsense labels. The stimulus presentations and reinforcement procedures were identical to those used in phase one. Two correct responses to each label were required before a new card was presented. When all four cards were trained to criterion, training sessions were initiated.

Training methods. Three stimulus cards were placed on the table in front of the subject. The subject was asked to "Point to (CVC label)." A correct pointing response was followed by reinforcement, an incorrect or no response after five seconds was followed by "no" and modeling of the correct response from the experimenter (not reinforced if imitated by the subject). Following approximately a five second pause where the cards were removed from the child's sight, shuffled and replaced, the next trial was initiated.

Each subject's training occurred under two conditions using an ABA design with two subjects and a BAB design with the other subject. Condition A was designated as the serial training method and Condition B was designated as the concurrent training method.

Under concurrent training, three cards were placed on the table in front of the subject. Each of the three CVC labels were presented in scrambled order during the fifteen minute session. Terminal criterion for any one label was six consecutive correct responses to presentations of that particular label. Training continued until all three labels within the trio had met this criterion. Also, when any label reached this level of criterion before the others, and therefore before training was completed for that trio, it was still presented in the scrambled order of stimuli presentations. A probe (to be described later) was administered when the subject reached criterion for all three labels.

The serial training method used a similar procedure except that, of the three cards in front of the subject, only one CVC label was trained to criterion at a time. All three CVC labels were trained to the criterion of six correct consecutive responses before training was completed. A probe was administered when training was completed on all three CVC labels.

Two subjects began training with the serial mode (A); the other one began training with the concurrent mode (B). The total number of trials necessary to reach criterion during the training of the three receptive labels within one trio was recorded and graphically plotted by condition.

Probes. A probe of 30 trials was administered when the subject completed training on each individual CVC label under both training methods. The subject was given ten trials for each of the three previously trained CVC labels. The order of presentation of each CVC label was scrambled with respect to the 30 probe trials. Stimulus objects used in the probes consisted of the three most recently trained figure cards, and the next three figure cards to be trained. All six cards were placed on a scrambled order on the table in front of the subject. Stimulus presentation and reinforcement remained the same as in the training phase. Following each trial the six cards were removed from the child's sight, shuffled, replaced and the next trial initiated. All probe trials were given for the trained CVC labels. Nontrained stimuli were not presented for receptive

identification during probe trials.

Percentage of correct responding was computed as the number of total correct responses divided by thirty. These percentages for each trio were plotted graphically by condition.

The administration of probe trios was identical in both of the training conditions. Each subject underwent two reversals following the initial training condition. Under each training condition, new trios were presented until a trend was established in the subject's rate of correct responding in the probe sessions. At that time the next training condition was put into effect.

RELIABILITY:

During sessions in each training condition an observer was present for a number of trials. The observer scored as correct or incorrect the pointing response of each training trial or probe trial before the experimenter delivered the reinforcement. The observer was provided the following rules for scoring the pointing responses: A response is scored as correct when the subject touches the figure after it is named by the experimenter. A response is recorded as incorrect when the subject (1) points to an incorrect figure, (2) points to more than one figure, or (3) does not respond. Any responding before the stimulus presentations was ignored for scoring purposes. The coefficient of agreement was computed by dividing agreements by agreements plus disagreements.

A total of 540 trials were observed to obtain an estimate of the reliability of the obtained data. Of these observations, 180 were obtained during probe conditions and 360 during training conditions. The reliability was measured for every child under the several conditions.

CHAPTER III

RESULTS

RELIABILITY:

Reliability, measured as the agreement between the recorded data of the observer and the experimenter, was 100 percent independent of conditions or subjects. The size of the stimulus cards, and the detailed response definition resulted in no discrimination problems during the training.

TRAINING AND PROBE DATA:

Julie's training began under Condition A (serial training). She underwent two reversals in an ABA design. Concurrent training and reestablishment of serial training completed her training sequence.

Figure 1 presents the total number of trials Julie made before reaching a predetermined criterion (six consecutive correct responses) for each trio of CVC labels during Condition A (serial training), Condition B (concurrent training) and reestablishment of Condition A. The median numbers of total trials required to reach criterion under these conditions were 22, 64, and 20 respectively. Serial training then, required fewer trials to criterion during both presentations of the training and a more stable rate of performance. The number of trials observed to reach criterion fluctuated under the concurrent training condition.

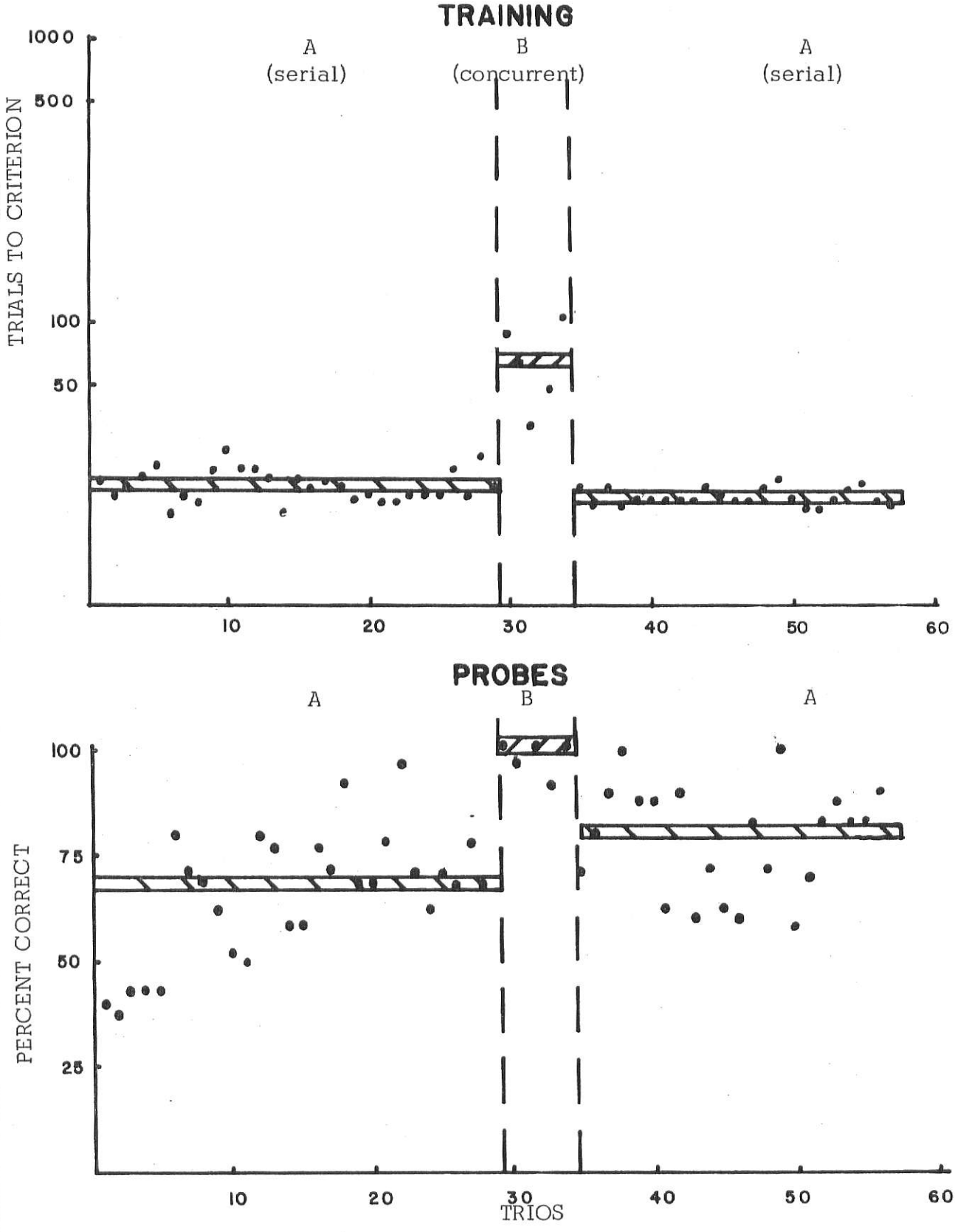

Figure 1 presents Julie's trials required to reach criterion during training and t percentage of correct responding during the probes for each trio under Conditic (serial training), Condition B (concurrent training) and reestablishment of Condition A, and the median range of responding during each of these conditions.

Julie's percentage of correct responding in the probes in the first presentation of Condition A (serial training) was variable as indicated in Figure 1. Her rate of correct responding ranged from 37 percent to 97 percent. A gradually increasing trend was noted in the percentages as more trios were probed. Twenty-nine trios were trained and probed during this mode before stabilization was observed slightly above 70 percent for five consecutive sessions. Her median level of correct responding was 67 percent during this method of training.

Julie's percentage of correct responding in the probes to the first trio trained concurrently during Condition B was 100. Her percentages of correct responding in the probes remained at or near this level for the next four trios trained concurrently. Her median level of correct responding was 100 percent.

A return to serial training produced the same variable rate of correct responding as in the previous training period under that condition. The range in correct responses was from 57 percent to 100 percent. No generally increasing or decreasing trend was observed. Her responding stabilized for five consecutive sessions just above the median of 80 percent.

This second presentation of serial training produced a somewhat higher median percentage (80) than did the initial serial training period (67), but both medians during serial conditions were lower than that obtained during concurrent training (100).

Billy followed the same order of training as above (Figure 2). As for Julie, Billy required less trials and was more consistent under serial training than under concurrent training to reach criterion. His respective median numbers of trials to criterion were 19, 48, and 19.

Billy's behavior during the probes was essentially stable throughout the training as seen in Figure 2. Five trios were trained and probed under the initial training (serial) with a median of 40 percent correct responses. The following five trios were trained concurrently and the probe scores of correct responding were consistently close to the median of 80 percent. Eleven trios were trained and probed under the final serial condition because of some variability in its initial scores. The final five probes during this condition stabilized close to a median number of 50 percent correct responses.

David began training in Condition B and underwent two reversals (BAB). The number of trials he made to reach criterion under the two conditions showed the same trend of less responses required during the serial mode than during the concurrent mode as shown in Figure 3. The medians of 66 and 84 trials to criterion were observed during the concurrent training conditions with the median for the serial training condition being 27.5 trials. David's responding also exhibited greater variability under concurrent training than under serial training, as did Julie and Billy.

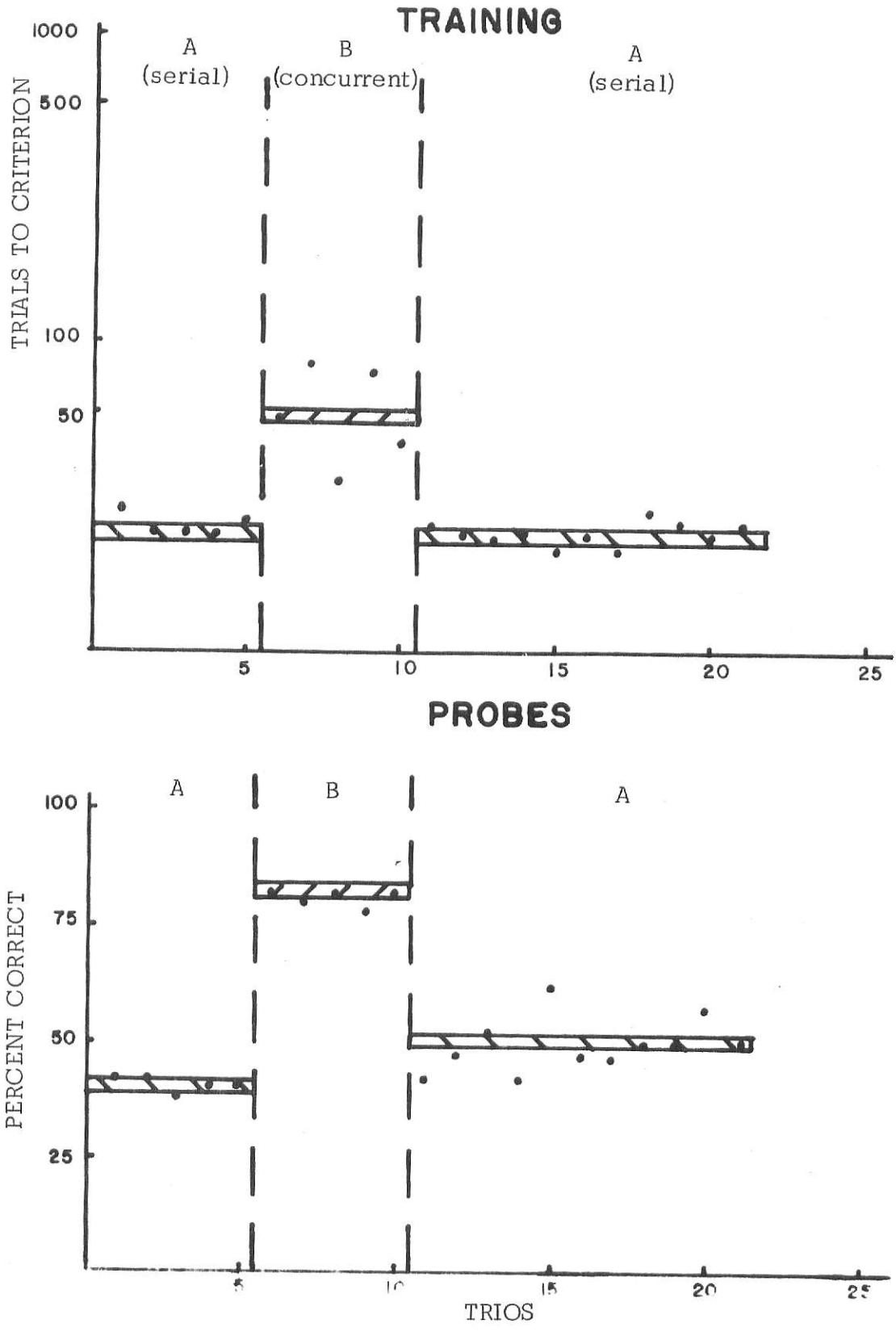

Figure 2 presents Billy's trials required to reach criterion during training and the percentage of correct responding during the probes for each trio under Condition A (serial training), Condition B (concurrent training) and reestablishment of Condition A, and the median range of responding during each of these conditions.

Figure 3 presents David's data obtained during the probes under the two conditions. David began the experiment under the concurrent training (Condition B) and underwent two reversals, to serial training and again to concurrent training. Training under both conditions produced generally level trends with a wide range of data points evident during each training condition. Although his behavior was variable throughout, he exhibited the same general trend as the previous two subjects. The median percentages of correct responding under both concurrent training modes were 90 and 87. During the serial training his median percentage of correct responding decreased to 57.

Appendix C contains lists, by subject, of the number of trials required to reach criterion and the percentage correct in the probes by condition for each trio trained.

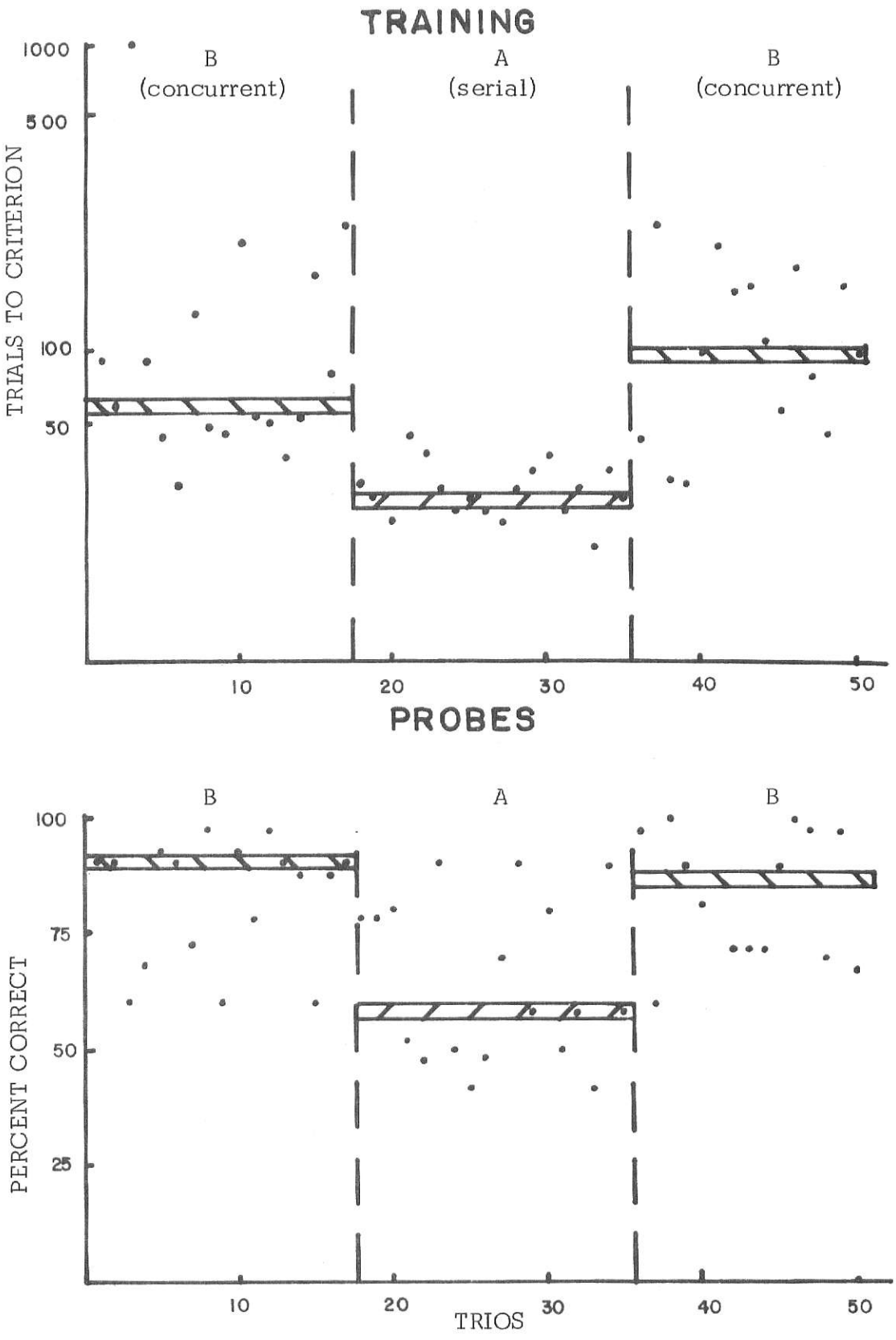

Figure 3 presents David's trials required to reach criterion during training and t
percentage of correct responding during the probes for each trio under Condition
(concurrent training), Condition A (serial training) and reestablishment of
Condition B, and the median range of responding during these conditions.

CHAPTER IV

DISCUSSION

Receptive labeling was trained under two conditions. Serial training required a simple order discrimination during which only one of the three stimuli items present acted as a discriminative stimulus at one time. During concurrent training all three stimuli acted as discriminative stimuli for any given trials. Concurrent training then required a higher order discrimination task. The labels trained under each method were probed in the presence of novel stimuli under an even more complex discrimination task similar to the concurrent training.

Receptive labels trained in groups of three concurrently resulted consistently in better discriminative responding in a probe setting than did those labels trained under the serial condition. That is, discriminative responding between the trained and non-trained nonsense figures was more accurate when the training had occurred under conditions which required a higher order discrimination. When put with other non-trained figures, those figures trained with serial presentations were not as accurately discriminated as figures trained concurrently.

A second finding observed in this study is that serial training resulted in fewer total trials to criterion for each trio of CVC labels than did the concurrent training method. The measure used in this study to compare the training modes was the median number of trials, correct and incorrect,

necessary to train all three CVC labels within one trio. Because concurrent training resulted in more total trials to criterion than serial, there were more correct trials reinforced, as well as more incorrect trials not reinforced during concurrent training. The probability of a particular response occurring increases with each reinforcement. The probability of a particular response not occurring increases with each nonreinforced response. The chance of incorrect or correct responses occurring following concurrent training then was more than that following serial training because serial training resulted in less reinforced and non-reinforced trials. Discrimination in the presence of unique stimuli was facilitated by the training history with the greater degree of extinction and reinforcement.

During serial training, as stated previously, the subjects, although responding to all three labels before training was completed, were required to respond to only one label at a time. It is conceivable that the subjects may have been attending only to the figure as they responded, and not to the label. Each incorrect response resulted in the experimenter providing a correction model. Therefore, if the subject did not respond to the initial stimuli presentation correctly by chance, the correct response was provided for him. The discriminative stimuli for responding may have been simply the completion of the vocal stimuli, regardless of the content of that stimuli. However, if this were so, the subjects trained serially would be expected to respond only at chance levels in the probe sessions.

All subjects responded above chance, indicating they were attending to the verbal stimuli as well as the figure.

During the concurrent method some over-training occurred. When one CVC label reached criterion before the others it was presented still in the scrambled order of stimuli presentations. This presenting of stimuli beyond the individual label's criterion added to the total number of trials to criterion during the concurrent mode. No overtraining was possible in the serial mode as each label's training was discontinued as soon as it met criterion. Therefore, it may be that finding serial training more efficient in terms of trials to criterion was a function of this particular design and not the training mode. However, further analysis of the data reveals that the same pattern was evident even when the overtraining count was disregarded. When the measure used to compare the methods was the median number of trials necessary to reach criterion for each individual CVC label within the trios, serial training still required less trials.

The probe trials administered to the subjects were designed as a higher order concurrent discrimination task. Each subject, then, regardless of training condition was administered a probe under essentially concurrent training conditions. For Julie and David, who required many probe trials to establish trends in responding, this resulted in their receiving hundreds of concurrent trials in the course of their training. It seemed possible that this amount of concurrent

training may have been a variable in their responding during both the serial and concurrent training and probes. This may have been evident in Julie's probe performance in the initial serial training. Her responding in the probes showed a generally increasing trend during that condition. No increasing trend was noted, however, in her probe performance following the second period of serial training. The increasing trend in her initial condition may have been a result of her becoming familiar with the task. Although David's performance in the probe trials fluctuated, no increasing trend was established during either condition. Median levels of correct responding in the probe trials following both periods of concurrent training were nearly equal. Both Julie and David responded better following concurrent training than following serial training, even if they received training in an ABA design and a BAB design respectively. Neither subject required less trials to criterion as a function of the number of trios probed. Therefore, the amount of concurrent training received in the probe trials is not an apparent variable in either trials to criterion or correct performance in the probes.

In the previous investigation of serial and concurrent imitation training (Schroeder, 1972) it was concluded that neither mode was more efficient in terms of trials to criterion. However, the present data indicates that there is a difference when training receptive labels. Serial presentations are more efficient in training. The study by Schroeder also concluded that concurrent training resulted in a more

generalized response class. Response class generalization was not measured in the present study. The probe session following training did establish however that responding in the presence of new stimuli was facilitated through previous concurrent training.

This study used three subjects in an ABA and BAB design. Only one subject received training under the BAB order. Although this subject exhibited the same basic trends in his behavior as did those subjects trained under the ABA design, his responding did not stablize during any training condition. This study could be strengthened by having one more subject under the BAB design.

Further research should be attempted before a conclusion can be made regarding the two training modes. The training mode which is more efficient in trials to criterion is less efficient in terms of stimulus discrimination. In order to state assuredly that one method is preferred above the other, any of several further investigations should be done.

One study might clarify the variables involved in the probe performance. The present study established six consecutive correct responses as its criterion level of training. This resulted in more stimuli presentations during concurrent training before the probes were administered. Further study using a set number of trials as criterion level regardless of training condition may indicate whether or not the probe performance was a function of number of training trials rather than a function of training condition. If

the same number of training trials during serial and concurrent training results in a better probe performance following concurrent training, concurrent training would be the preferred training mode. However, the opposite may be found.

Another area of investigation would be the actual design of the probe session. A probe designed to establish the degree of response generalization may better indicate the therapeutic value of either condition.

Finally, more investigation may also determine that some combination of serial and concurrent training would yeild an even higher degree of discrimination of generalization without sacrificing training trials. For example, one combination of the two training procedures might be to train one label serially to criterion, then another serially to criterion; then combine the two and present them concurrently to criterion. This procedure could be repeated with any number of labels by dropping out the first labels trained as the newly trained labels are added to the concurrent training conditions.

This investigation applies directly to applied techniques in language training. Nearly all therapeutic techniques require considerations for discrimination between previously learned stimuli and new stimuli. Many are also concerned with training the responses in the least time consuming manner possible. This study began an investigation to select an efficient, valid training procedure for training

receptive labels. However, until further research is done, neither serial nor concurrent training was identified as being the preferred method.

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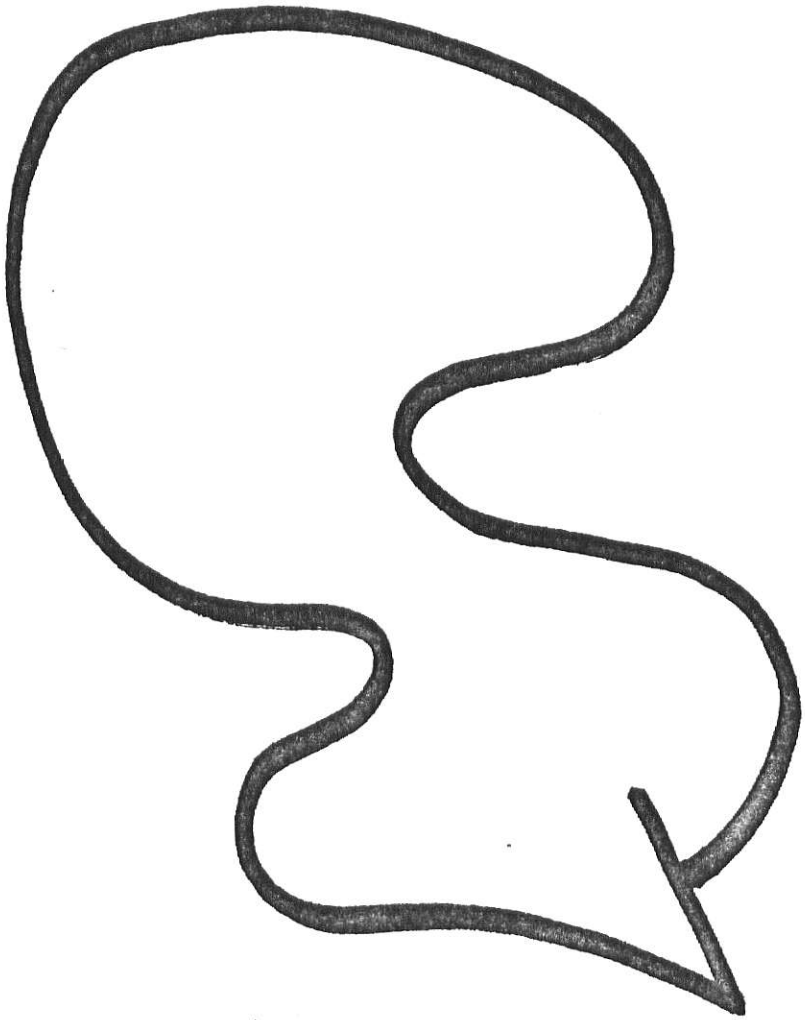
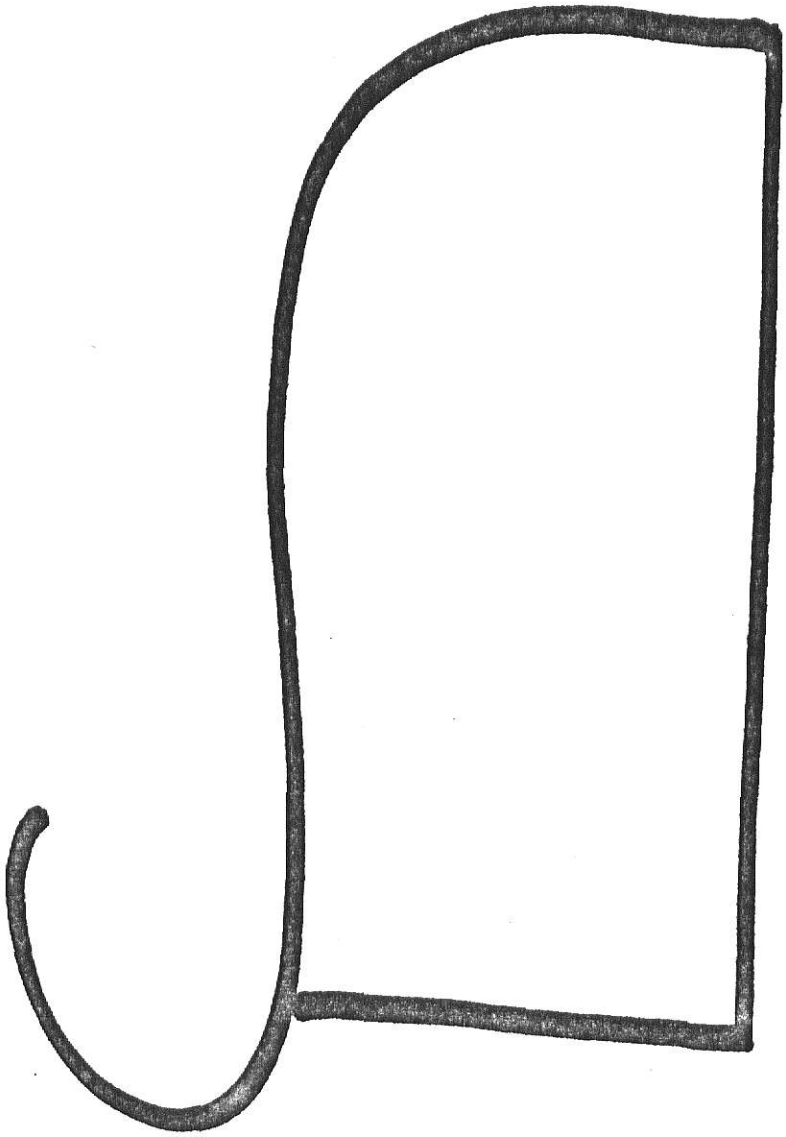
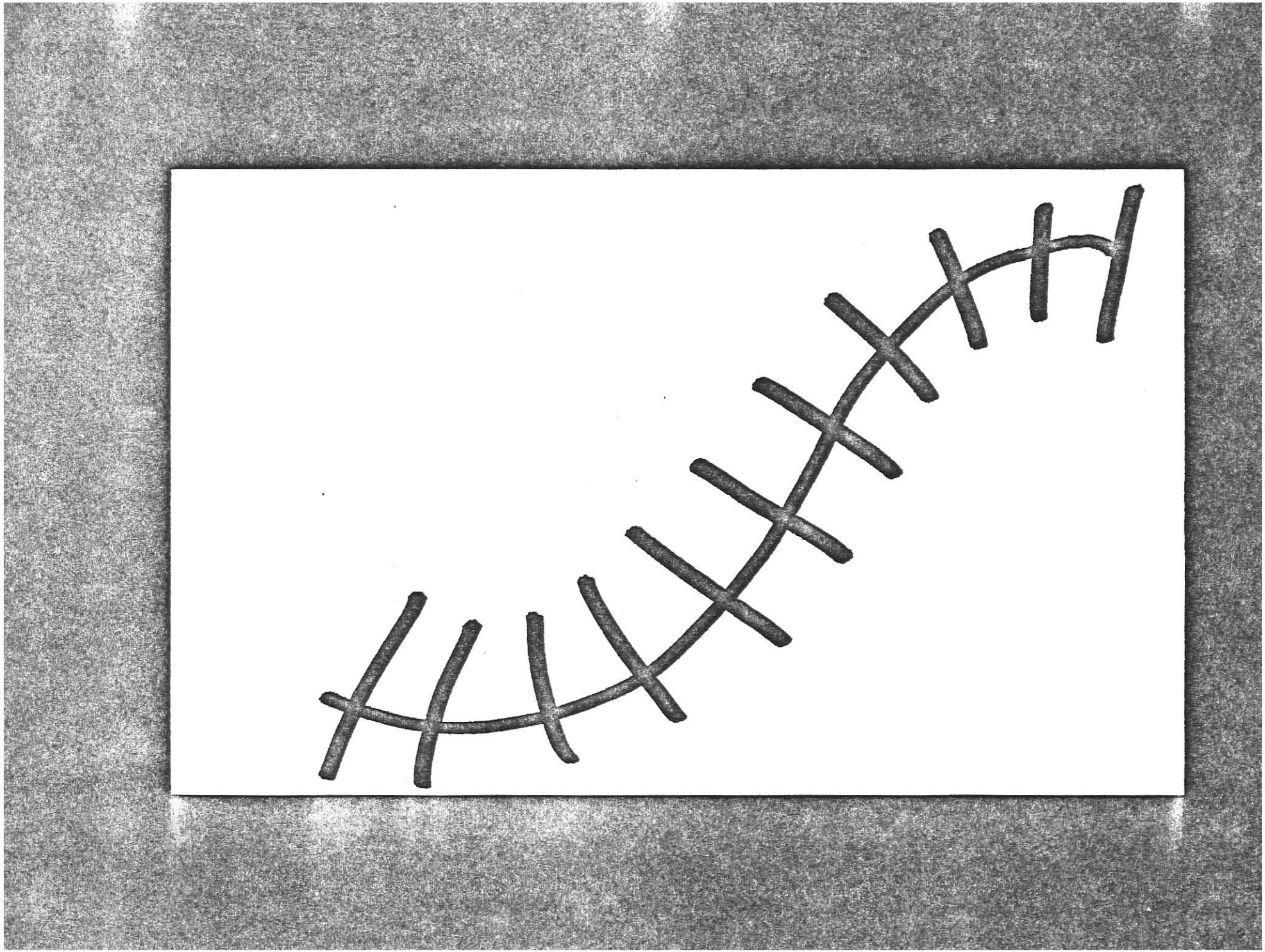
APPENDIX A







APPENDIX B

TRIOS OF CVC LABELS*

1.	tæʤ	vof	hek
2.	dʌʃ	tʃam	suv
3.	bɛp	kɪg	ʤʊv
4.	nik	lʌʒ	fʊŋ
5.	wod	heʃ	pim
6.	vaθ	ʃɛm	goŋ
7.	mʌb	ruk	setʃ
8.	tɪs	rʊð	gæk
9.	vop	pʌv	faʒ
10.	def	kʌg	tʃoŋ
11.	fav	neð	ʤɛʃ
12.	bug	leʤ	hoʃ
13.	wæs	ʃʊm	motʃ
14.	sɪdʒ	hep	lɛʒ
15.	ʤom	ʃɛz	tag
16.	vif	roʤ	nʌʃ
17.	tɛb	pef	tʃʌs
18.	sog	rin	hʌð
19.	baʃ	tʃɛv	puz
20.	fuθ	hiʃ	nog
21.	teʒ	mɪb	ʤaf
22.	næŋ	tʃɛz	sug
23.	roθ	wib	pum
24.	hɪv	foʒ	lʌp
25.	dudʒ	bɛf	kaʒ
26.	ʤaŋ	næʒ	tɪv
27.	sʊg	mip	ʃuv
28.	wog	hɛb	fɪv
29.	buv	ʤoð	nɪm
30.	tʃɛdʒ	kel	hʊn
31.	pag	vis	muk
32.	ræʒ	tʌv	gap
33.	ʃiʒ	vaf	wæz
34.	pug	hʊb	foʃ
35.	laʒ	dut	bɪv
36.	kib	ʤuf	tʃʌʃ
37.	nɪv	hɛg	sʌʒ
38.	gadʒ	fʊd	nip
39.	roŋ	mɛf	guv
40.	vidʒ	wæʃ	pʌŋ

*written in International Phonetic Alphabet

41.	tʃʌf	nup	gok
42.	ʃaf	dʒeg	puv
43.	hɪdʒ	fus	lov
44.	kɛb	dʒɛtʃ	tug
45.	tav	soʒ	lið
46.	kog	dʒʊtʃ	nɪz
47.	pæʒ	vip	bem
48.	tʃʊv	todʒ	hað
49.	dʒub	gɪʃ	saʒ
50.	tɪdʒ	vɛd	poθ
51.	heʒ	fʋg	tʃim
52.	tʃɛð	vap	s
53.	fik	lotʃ	bæz
54.	dʒeʃ	næf	rok
55.	væʃ	nedʒ	loz
56.	lug	kiʃ	mɪŋ

APPENDIX C

Julie

TRIO	CONDITION	TRIALS TO CRITERION	% CORRECT IN PROBE
1	A	23	40
2	A	20	37
3	A	22	43
4	A	24	43
5	A	27	43
6	A	18	80
7	A	20	70
8	A	19	67
9	A	26	63
10	A	30	53
11	A	26	50
12	A	26	80
13	A	23	77
14	A	18	57
15	A	23	57
16	A	22	77
17	A	23	73
18	A	22	93
19	A	19	67
20	A	20	67
21	A	19	77
22	A	19	97
23	A	20.	70
24	A	20	63
25	A	20	70
26	A	26	67
27	A	20	77
28	A	28	67
29	A	21	70
30	B	84	100
31	B	64	97
32	B	33	100
33	B	50	93
34	B	96	100
35	A	21	73
36	A	19	80
37	A	22	90
38	A	19	100
39	A	20	87
40	A	20	87

Julie (continued)

TRIO	CONDITION	TRIALS TO CRITERION	% CORRECT IN PROBE
41	A	20	63
42	A	20	90
43	A	20	60
44	A	21	73
45	A	20	63
46	A	20	60
47	A	20	83
48	A	21	73
49	A	23	100
50	A	20	57
51	A	19	70
52	A	19	83
53	A	20	87
54	A	22	83
55	A	22	83
56	A	20	90
57	A	19	80

Billy

TRIO	CONDITION	TRIALS TO CRITERION	% CORRECT IN PROBE
1	A	23	43
2	A	19	43
3	A	19	37
4	A	19	40
5	A	22	40
6	B	48	83
7	B	80	80
8	B	29	83
9	B	75	77
10	B	37	83
11	A	20	43
12	A	19	47
13	A	19	53
14	A	19	43
15	A	18	63
16	A	19	47
17	A	18	47
18	A	23	50
19	A	21	50
20	A	20	57
21	A	21	50

David

TRIO	CONDITION	TRIALS TO CRITERION	% CORRECT IN PROBE
1	B	82	90
2	B	66	90
3	B	1000	60
4	B	84	67
5	B	45	93
6	B	32	90
7	B	119	73
8	B	48	97
9	B	46	60
10	B	220	93
11	B	57	77
12	B	54	97
13	B	40	90
14	B	55	87
15	B	160	60
16	B	78	87
17	B	239	90
18	A	30	77
19	A	27	77
20	A	22	80
21	A	54	53
22	A	43	47
23	A	28	90
24	A	24	50
25	A	26	43
26	A	24	47
27	A	22	70
28	A	28	90
29	A	36	57
30	A	40	80
31	A	24	50
32	A	30	57
33	A	18	43
34	A	35	90
35	A	27	57
36	B	41	97
37	B	245	60
38	B	32	100
39	B	30	90
40	B	84	83

David (continued)

TRIO	CONDITION	TRIALS TO CRITERION	% CORRECT IN PROBE
41	B	220	87
42	B	165	73
43	B	179	73
44	B	96	73
45	B	53	90
46	B	196	100
47	B	68	97
48	B	42	70
49	B	157	97
50	B	84	67

EFFECTS OF CONCURRENT AND SERIAL TRAINING ON RECEPTIVE LABELING BEHAVIOR OF MENTAL RETARDATES

by

LOIS JEAN WALDO

B. S., Kansas State University, 1973

AN ABSTRACT OF A MASTER'S THESIS

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1974

Recent research in language training has taken steps toward investigating specific training questions, and establishing complete, validated language programs for retarded children. Many questions remain to be answered.

This study compares procedures for facilitating the maintenance of a learned response in the presence of novel stimuli. The report contrasts the effectiveness of two procedures in receptive labeling training with retarded children in terms of number of trials required to reach criterion and performance in a probe setting following training. The two methods compared were serial and concurrent training.

Serial training involved training one item to a specified criterion, then a second item to criterion, and, finally, a third item. Concurrent training included training all three items simultaneously to a specified level of criterion performance. A reversal design was used with three subjects. Two subjects began training with the serial method, one began training with the concurrent method. All subjects underwent two reversals.

The training stimuli used in this study were one syllable, consonant phoneme/vowel phoneme/consonant phoneme, nonsense labels arbitrarily assigned to ambiguous geometric forms. The forms were printed on cards and divided into trios.

The present study concluded that serial training required less trials to reach the specified criterion, yet concurrent training resulted in better probe performance.