The Effect of General versus Descriptive Vocal Praise on Concurrent Behaviors

Vernon L. Crouch  
Western Michigan University

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THE EFFECT OF GENERAL VERSUS
DESCRIPTIVE VOCAL PRAISE ON CONCURRENT BEHAVIORS

by

Vernon L. Crouch

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Master of Arts

Western Michigan University
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August 1974
I would like to thank all those people who have helped me in the preparation of this thesis. The cooperation I received from the staff at Comstock West Elementary School added a particularly enjoyable dimension to my research. I am especially thankful for the help of Doris Mosier, Greg Vaughn, Roberta Kreg, and Cathy Markey. My sincere appreciation goes to Eric Hayes for encouraging me to carry out this research in the School Adjustment Program and for providing continued support. I appreciate very much the help I received from Debbie Kruithoff and Lucretia Meeth in preparing this manuscript. I would also like to express my thanks to Dr. Jack L. Michael, Dr. Robert P. Hawkins, and Dr. Galen Alessi for their advice and constructive criticism as my committee members. A special thanks goes to Dr. E. Wade Hitzing for his invaluable supervision and probing questioning. Finally, my deepest appreciation goes to Michael Sewell, Wendy Sewell, and Ruth Reames for their friendship and understanding throughout.

Vernon L. Crouch
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There are a number of studies demonstrating the effective use of positive reinforcement to change student behavior in elementary education. Specifically, many of these studies used praise as the reinforcer. Though early studies frequently mention using general praise comments, such as, "That's a very good job," or "You're doing fine," (Madsen, Becker, & Thomas, 1968; Ward & Baker, 1968), there has been an increasing trend toward the use of praise comments that more clearly describe the exact behavior the child emitted that the teacher is trying to reinforce. Such comments have included, "Susie, how neatly you write!" (Sulzer, Hunt, Ashby, Koniarski, & Krams, 1971) and "I like the way John is paying attention," (Cossairt, Hall, & Hopkins, 1973). Several studies designed to teach behavior management skills to teachers have also concerned the use of descriptive praise comments. For example, a recent study concerning how to teach such skills to teachers included teacher delivery of behavior specific praise as a dependent variable which was successfully increased in frequency (Thomas, 1971). In another study, teachers were instructed to, "Tell the child what he is being praised for," (Madsen, Becker, & Thomas, 1968).

For the most part, this descriptive method of praising children has been advocated on the basis of logical or rational arguments. For example, the argument has been made that praise which is descriptive of behavior is more effective as a reinforcer than praising the whole child. If you tell a child she is an angel for doing something, the child may not accept the comment that she is an angel knowing of other
mistakes she has made that day (Becker, 1971). Another argument for using descriptive praise has been that "the clearer the teacher's requirements are, the easier it will be for the child to meet them" (O'Leary & O'Leary, 1972). This seems to imply that there is an additional instructional or stimulus control factor involved which perhaps specifies the contingency arrangement in effect at the time.

Perhaps another way of viewing the descriptive praise comment is as the statement of a rule. Such rules and their governing effect on behavior are dealt with at length by B. F. Skinner in the book, Contingencies of Reinforcement, A Theoretical Analysis. Skinner proposed two major ways in which behavior is controlled: contingency-shaped and rule-governed. By contingency-shaped, Skinner referred to the often documented effects of response contingent consequences. In contrast, he defined rules as "discriminative stimuli which improve the efficiency of behavior under given contingencies of reinforcement" (Skinner, 1969). Rules may be derived from an analysis of the contingencies in effect in a given situation. As such, they allow the organism to behave in that situation with a higher probability of obtaining available reinforcers.

It is important to note that a rule by this definition does not have just a simple discriminative stimulus effect. By the simple effect of a discriminative stimulus, a given behavior is more probable in its presence. However, a rule may effectively function long after the point in time when it is stated. For example, a child praised for raising his hand in the form, "Good, I like the way you're raising your hand when you have a question," may exhibit behavior appropriate
to this rule two days or two weeks later as a result. In this way, the
rule has had an effect on the future probability of hand raising and
may effectively alter the child's tendency to respond in this way
despite the fact that the rule may never be stated again. In other
words, he will respond without the presence of the exteroceptive stimu­
lus, the rule, being stated by his teacher again which makes it unlikely
that the rule is having a simple discriminative stimulus effect. (Of
course, it is possible that the child verbalizes the rule covertly,
"saying it to himself," before raising his hand in the future.)

A rule may also improve the efficiency of behavior by decreasing
wasteful superstitious behavior. Superstitious behavior has been so
termed since it bears only an accidental relationship to the events
which follow it. Although occurrence of the behavior may be main­
tained by accidental contact with the consequent reinforcing events,
they are not produced by the behavior (Skinner, 1948). Since any
behavior a reinforcer is made contingent upon may increase in pro­
bability of occurrence, there is usually some probability that inci­
dental behaviors which happen to precede the reinforcing consequence
will be increased in frequency of occurrence. By informing the organ­
ism as to which behavior will be reinforced under given condition, a
rule may decrease the probability that such superstitious behaviors
will be emitted.

Applying Skinner's statements regarding rule-governed effect on
behavior, we might conclude that descriptive praise would have two
advantages over general praise:

1. The rule stated or implied by the descriptive praise may
act as a discriminative stimulus in the presence of which the behavior described by the praise will be reinforced (if the student continues to covertly verbalize the rule).

2. The statement of the rule may decrease the probability of superstitious behavior developing.

More recently, two studies have dealt with determining if description of the behavior being reinforced is more effective than using general praise comments. In the first study, descriptive social reinforcement with its content frequently indicating the type of block building the teacher was reinforcing was used to increase creative block building (Goetz & Baer, 1971). Since no systematic attempt was made to isolate descriptive from non-descriptive praise used, the study was inconclusive in demonstrating that the descriptive element was necessary. In a follow-up study, the use of descriptive and general praise forms were systematically manipulated (Goetz & Salmonson, 1972). The authors concluded that the descriptive praise was more effective in increasing creative easel painting. It might be argued, however, that the responses they defined were so specific in nature that their descriptive praise was acting much more as a necessary instruction in what to do than would be the case with more general forms of behavior such as on-task behavior. For example, one of the descriptive comments they used was, "Now you are doing a zig-zag back and forth," (Goetz & Salmonson, 1972).

Aside from the question of whether or not descriptive praise is actually more effective than general praise, there are some other factors that should be explored before its use is endorsed over general praise. These factors center around the idea that the only behavior
being strengthened by the teacher's praise comments is the behavior she describes. It has been the experimenter's experience that a teacher will sometimes praise a child who is simultaneously engaged in appropriate and inappropriate behavior. She also usually describes the appropriate behavior he was emitting. In later conversation with such a teacher, she may say that the concurrent behavior being exhibited was inappropriate and was something she would like to see decreased in rate. However, she usually will also argue that since her praise was specific to the appropriate behavior (i.e., she named or described the appropriate behavior in the process of praising the child) her comment had a differential effect on this behavior alone. At the least, she will usually say that the descriptive praise comment had more of a strengthening effect on the appropriate than on the inappropriate behavior.

What we currently know of the nature of the reinforcement process provides some cautions to adopting this attitude. One relevant point that has been argued is that reinforcers are not response specific but rather serve to increase the rate of any behaviors they are contingent upon (provided a sufficient deprivation state exists and the magnitude of the stimulus or event is great enough to act as a reinforcer at all) (Whaley & Malott, 1968).

A second point to consider is that more than one behavior can be affected by a reinforcer at the same time, i.e., all ongoing responses should be duly affected by the delivery of a reinforcer. If we look at praise strictly as a reinforcer, (assuming it has been shown to increase the probability of occurrence of at least one of the student's
behaviors), it would seem reasonable to expect any and all behaviors that such praise was immediately contingent upon to increase in probability of occurrence.

The object of the following two experiments was to address the two questions raised above: (1) Is descriptive praise more effective in increasing behavior than general praise? (2) Is it true that one can praise, by being descriptive, without concern for a reinforcing effect on other concurrent behavior?

In Experiment I, a subject was sought who emitted an appropriate and an inappropriate behavior that were easily concurrent. Under these conditions, general and descriptive praise could be alternately applied to the appropriate behavior; and their effects could be assessed on both the behavior they were made contingent upon as well as a frequently occurring concurrent inappropriate behavior. In order to establish a baseline from which to evaluate either increasing or decreasing effects of the independent variables, the behaviors were also chosen so that they had a medium level such that both had room to move up or down in frequency of occurrence.

In Experiment II, a subject was selected who emitted two appropriate behaviors that occurred concurrently. In this case, the independent variables could be applied to one appropriate behavior while observing their effect on this target behavior as well as another frequently concurrent appropriate behavior. Once again, behaviors of medium level (occurring 35-65% of the time observed) were sought from which to evaluate increases or decreases in frequency of occurrence.
EXPERIMENT I

Method

Setting

The study took place in a special education classroom for emotion­ally impaired children. The classroom was self-contained and staffed by a teacher, an aide, and occasional student help from nearby universi­ties (student teacher participator, credit students, etc.). The experimenter was a consultant to this classroom, acting as an indepen­dent observer to suggest continuance or changes in procedures used with the children, among other duties. The general approach to education and social adjustment of the children was based on principles of learn­ing. That is, the teacher and aide concentrated on specifying observ­able behaviors in need of development or reduction and proceeded to design and implement procedures to cause these changes based on the principles of operant conditioning. For a more thorough description of this program and common procedures used, see Hawkins, McArthur, Rinaldi, Gray, & Schaftenaar, 1967).

The students' desks in the classroom were arranged in a semi-circle facing the teacher's desk at the front of the room. There were between six and eight students in the room on any given day. Experimental sessions took place on school days from 10:50 a.m. to 11:20 a.m., if possible, and occurred during an oral spelling lesson. The teacher would select a category of words such as fruits, vegetables, birds, etc., and invite the class to generate a list of things that belonged in this
category. She would write the suggested words on the blackboard, and they then served as the spelling list for the next one to two weeks. Once a list had been completed, the children would take turns spelling the words orally. One day per spelling unit was usually devoted to spelling the words on paper.

**Subject**

The subject, Jerry, was a 12-year-old boy in the previously described classroom for emotionally impaired children. He had been described as unable to follow directions, had trouble completing tasks, was frequently truant, daydreamed excessively during class, and frequently teased younger children.

The teacher had noted that although most of the class attended very well during the spelling lesson the subject frequently fell asleep, looked out the window, or stared at something other than the lesson material. He also frequently bit or chewed his cuticles and other parts of his hand. This hand-biting was frequent enough to often be concurrent with attending behavior. Both she and her aide had expressed concern that stepping in and praising or otherwise reinforcing the subject's attending would also result in an increase in hand-biting. Preliminary time samples showed that hand-biting and attending both occurred in the range of 35-60% of the time and were frequently concurrent. He, therefore, appeared a good subject for the questions of concern in this study.

**Behavior definitions and recording**
All behaviors were recorded by the experimenter who sat at the back of the room ten feet to the right and six feet behind the subject. Behaviors were recorded if they occurred in a 10-second interval with the aid of a special cassette tape that had been prepared. This tape ran continuously during the session. It had a pre-recorded tone that signaled the beginning of each 10-second interval, a different tone that signaled the end of the 10-second interval, and a three-second observational recording period between intervals. At the beginning of each minute, a number was entoned which denoted the number of elapsed minutes in the session. The cassette was played on a standard portable cassette recorder with an earphone so that only the experimenter heard the tape recording. This allowed the experimenter to observe continuously for 10 seconds without averting his gaze to a stopwatch, then allowing three seconds to record what had been observed in that interval. Prior to the use of this tape (in pre-baseline observations), it had been found that as much as five seconds of each 10-second interval could be consumed in looking at a stopwatch and recording the several behaviors being measured. The experimenter recorded on a clipboard in his lap which held prepared data sheets that were blocked off in six squares per minute and numbered to correspond to the cassette tape.

Pre-baseline observations had indicated that all students in the classroom varied their eye contact to the lesson material or teacher frequently although the teacher had expressed satisfaction with the extent of attending most of the students displayed. In addition, observations of the subject indicated that though he was frequently biting his hand, rarely did he do so for a continuous 10 seconds.
That is, scoring 10-second intervals only if the subject engaged in those behaviors for the full 10 seconds observed was not a practical measurement standard. The durations chosen to define the behaviors were three continuous seconds for attending and two continuous seconds for hand-biting. In order to assess how well this measurement procedure tracked actual continuous attending and hand-biting, total time measurements were taken throughout this study.

Twice per experimental condition, total time measures were taken of the subject's attending and hand-biting. The experimenter would hold a stopwatch in one hand, started it when the behavior being recorded began, and stopped it when the behavior terminated. (Attending and hand-biting were recorded by this measure in separate sessions.) In this manner, a figure was arrived at of how many seconds in total the subject had been attending or hand-biting during a session. This was done in order to determine if the duration criteria included in the definitions of the two behaviors resulted in an accurate sample of the behaviors. Following a total time check, a percentage was computed by dividing the total time recorded on the stopwatch by the total session observation time, i.e., the number of intervals coded, multiplied by 10 seconds per interval.

The following behaviors were measured for the child and teachers:

**Child behaviors**

1. **Attending.** When the subject was observed to have his eyes oriented to: (a) a person presenting lesson material. This could include the teacher, aide, student teacher, or another student asked to act as teacher; (b) the lesson material which included the words written on the blackboard, physical props
in the room, overhead projector, or on-desk materials such as writing paper; or (c) another student participating in the lesson by having a question directed at him, answering a question, or participating in presentation of material. In addition, if the subject was asked to turn away and spell a word, doing so was recorded as attending. In all of the above cases, the subject had to be directing his eyes to one or a combination of the above stimuli for three consecutive seconds in a 10-second interval for an attending response to be recorded.

2. **Hand-biting.** Any part of either hand (up to the wrist) in contact with the subject's partially opened mouth for two consecutive seconds in a 10-second interval.

3. **Concurrent.** Both an attending and a hand-biting response simultaneously on-going in a 10-second interval. Both responses had to occur long enough to meet their respective duration criteria while they were simultaneously occurring to be recorded as concurrent. It was also noted if both an attending and a hand-biting response occurred in a 10-second interval but were not concurrent.

Teacher behaviors

1. **General praise.** Any vocalization for the teacher, aide, or student teacher directed to the subject that expressed approval using such words as, "Good," "Nice," "I'm happy," "I'm pleased," etc. The vocalization could not include any description of the subject's behavior, i.e., no specific aspect(s) of the subject's behavior could be singled out in the vocalization. Examples included, "Good, Jerry," "I'm so pleased with you," "You're a good boy," etc.

2. **Descriptive praise.** Any vocalization from the teacher, aide, or student teacher directed to the subject that expressed approval and described the behavior that the praise was directed at. Examples included, "I really like the way Jerry is paying attention," "I like it when you look right at me," "Good. You spelled that one right," etc. It should be noted that a descriptive praise comment could contain a general praise component such as "good" or "very nice" as long as a description of the subject's behavior also occurred.

3. **Interaction.** Any other teacher, aide, or student teacher interaction with the subject was also recorded in terms of what behavior it was contingent upon. Such interactions included: (a) instructions or questions directed to the subject such as when he was told to spell a word, look at the board, write a word, or his name was called; (b) prompts directed to the
subject such as when the teacher mouthed sounds or letters while the subject was spelling a word; and (c) physical interactions with the subject such as when he was supplied with paper and pencil, when any object or material was taken away, and when he was given pats on the back.

4. Token delivery. Whenever the teacher, aide, or student teacher gave the subject a poker chip. (Poker chips were used as generalized reinforcers for the token economy in effect in the classroom.)
Procedure

Natural baseline

The teacher was told only that the experimenter was starting a study involving Jerry and was asked to interact with the class as usual. Since the teacher and children were accustomed to the experimenter being in the classroom on a regular basis as a consultant, there was little notice taken of his presence. During each spelling lesson, the experimenter started the cassette recorder and continued to observe until at least 120 intervals (20 minutes) had been recorded.

Descriptive praise I

A list of praise statements descriptive of attending was developed by the experimenter and the teacher. The teacher's cooperation in developing the list was sought so that they would be statements which she could easily and naturally use, i.e., fit her usual manner of interaction with the children. The statements were limited to five to seven words in length which matched the average length of praise statements the teacher had used under the baseline condition. This was considered to be important so that the subject did not receive any more, or less, attention from the teacher under the different praise conditions, contingent upon his behavior.

The list of statements used follows:

1. I'm glad you're paying attention.
2. I'm glad you're watching, Jerry.
3. That's good attending, Jerry.
4. Jerry's really paying attention today.
5. Good. You're watching me (the blackboard), Jerry.
6. Good. You're attending to Bobby (Mary, etc.), Jerry.
7. You're watching what we are doing.
8. You're really watching closely, Jerry.
9. Good. You're looking at me (the blackboard, Bobby, Mary, etc.).
10. I'm glad you're listening, Jerry.

The teacher was asked to keep this list on her desk, to refer to it just prior to the beginning of each session, and to stick as closely as possible to the wording and length of the statements. In addition, she was given feedback on the average number of praise comments she had been observed to use with the subject in the natural baseline phase. She was asked to restrict herself to the same number of praise comments per session (an average of five) as well as to have about the same number of interactions and deliver the same number of tokens as she had in the natural baseline phase. In the first session of this phase, however, the teacher was observed to use almost four times as many praise comments as the natural baseline average. As a result, the teacher and experimenter agreed some form of cueing was needed to keep her posted on the number of praise comments she made in a session. Six $8\frac{1}{2}$" x 10" pieces of paper were prepared with a numeral from 5 to 0 on each. During the session, the experimenter posted a sheet on the bulletin board behind him which indicated how many praise comments remained to be delivered, i.e., when each session began, a "5" was posted; after one praise statement was delivered, this was replaced with a "4"; etc.
Periodically, the experimenter gave the teacher feedback on how well she had kept to the agreed upon praise statement, their number, and the number of other interactions and tokens delivered.

**Descriptive praise II**

Because the subject's attending behavior was not increased sufficiently in the previous condition, the number of praise comments was increased to determine if more frequent reinforcement would alter attending. Experimental conditions in this phase were exactly the same as under the previous descriptive praise phase except that the teacher was instructed to deliver 10 praise comments per session contingent upon attending behavior. The experimenter cued the teacher as before except that numbered sheets in descending order from 10 to 0 were posted at the back of the room.

**Return to baseline**

Following the descriptive praise II phase, the teacher was instructed to once again interact with the subject as she had in the natural baseline. Specifically, she was not to make any special effort to use descriptive praise. The experimenter sat at the back of the room and recorded as before; however, the teacher was not given any feedback as to how frequently she was praising.

**General praise and special tokens**

Under this condition, the subject was given an extra token dish with special tokens in it which were easily identifiable as being
different from the regular tokens normally used in the classroom. The teacher was instructed to use only general praise at the baseline frequency (five); but each time she praised the subject for attending, she was to also tell him to, "Take a chip." The subject then transferred a chip from the extra token dish to his own token dish. A contest was arranged with the subject. If he had more special chips in his dish than remained in the extra dish at the end of each session, there were two consequences: (1) He immediately received a treat (choice of nuts, a candy bar, or m & m's); (2) He received a sticker to be pasted on a reinforcer sheet that was posted in the classroom. For every four stickers the subject obtained, he was to get his choice of a short extra-curricular trip with the experimenter. The choices included such things as going fishing and going to a local motor cycle shop to look at mini-bikes, among others. As before, the experimenter recorded from the back of the room and posted numbered sheets as feedback to the teacher.

**Descriptive praise and special tokens**

The teacher was instructed to behave as in the previous phase except to use only descriptive praise statements when she praised. All other conditions were the same.

**Observer reliability**

Observer reliability was checked at least once per condition (except for the short return to baseline which preceded the descriptive praise and special tokens condition) in the following manner. An independent observer was given the list of behaviors to be recorded, asked
to study them, allowed to ask questions, and practiced one session of recording with the cassette. This last step was found necessary since at first it was difficult to keep pace with the tones on the cassette. When reliability checks occurred, the experimenter and independent observer sat with a chair between them on which lay the cassette recorder; and each tipped their clipboards away from the other. Two earphones were patched into the recorder so that both heard the tones which demarked the intervals at the same time.
Results

Observer reliability

Observer reliability checks occurred during sessions 8, 10, 19, 20, 24, 28, 38, 40, and 41. Two measures of observer reliability were computed for each behavior and event recorded. For the first, scored interval reliability, a tally was made of agreements and disagreements between the experimenter's data and the independent observer's data for each 10-second interval in which either observer had recorded a given behavior or event. The number of agreements was then divided by the sum of the agreements and disagreements and the result multiplied by 100 to obtain a percentage scored interval reliability. This process was repeated for each behavior and event recorded. For the second measure, unscored interval reliability, a tally was made of agreements and disagreements between the experimenter's data and the independent observer's data for each 10-second interval in which either observer had not recorded a given behavior as having occurred. A percentage unscored interval reliability was then obtained as above. The mean scored interval observer reliability for behaviors recorded in Experiment I was 84% (range 77-94%). Mean unscored interval observer reliability for these behaviors was 94% (range 79-100%) for the experiment. The independent observer's data for child behaviors recorded is plotted in the appropriate Figure (1, 2, or 3).

Teacher behaviors

The first three columns of Table 1 show the mean number of praise
<table>
<thead>
<tr>
<th>Experimental Phase</th>
<th>Mean No. Praise Comments</th>
<th>Percent General</th>
<th>Percent Descriptive</th>
<th>General Praise Delivered</th>
<th>Descriptive Praise Delivered</th>
<th>Other Teacher Interactions</th>
<th>Classroom Tokens Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Baseline</td>
<td>5.0</td>
<td>98%</td>
<td>2%</td>
<td>4.5</td>
<td>.15</td>
<td>.23</td>
<td>0</td>
</tr>
<tr>
<td>Baseline (General Praise)</td>
<td>7.0</td>
<td>80%</td>
<td>20%</td>
<td>5.0</td>
<td>.66</td>
<td>.33</td>
<td>0</td>
</tr>
<tr>
<td>Descriptive Praise I</td>
<td>6.2</td>
<td>3%</td>
<td>97%</td>
<td>.2</td>
<td>0</td>
<td>1.65</td>
<td>1.6</td>
</tr>
<tr>
<td>Descriptive Praise II</td>
<td>10.1</td>
<td>2%</td>
<td>2%</td>
<td>.25</td>
<td>0</td>
<td>.25</td>
<td>1.0</td>
</tr>
<tr>
<td>General Praise</td>
<td>5.2</td>
<td>96%</td>
<td>4%</td>
<td>.17</td>
<td>0</td>
<td>.33</td>
<td>3</td>
</tr>
<tr>
<td>Descriptive Praise &amp; Special Tokens</td>
<td>5.3</td>
<td>6%</td>
<td>94%</td>
<td>.0</td>
<td>0</td>
<td>.33</td>
<td>3</td>
</tr>
</tbody>
</table>

A - Attending; B - Bitting; C - Concurrent Attending and Bitting
comments delivered per session and the percentage of this praise that was general or descriptive for each experimental condition. The remaining columns show the mean number of teacher behaviors per session that were contingent upon subject behaviors for each experimental condition. Looking at the first column, it is clear that the teacher consistently followed the experimenter's instructions regarding the number of praise comments to be delivered. An exception was session 14 (the first session of the descriptive praise I phase) in which the teacher delivered 18 praise comments. This extreme is reflected in Table 1 by the mean increase to 6.2 praise comments per session under the Mean No. Praise Comments column for the descriptive praise I phase. For the remaining sessions of the experiment, the experimenter cued the teacher regarding the number of praise comments she should deliver. With the cueing procedure in effect, the teacher kept to the planned number of praise comments. Data in the next two columns show that the teacher also consistently followed instructions regarding the type (general or descriptive) of praise to be delivered during each experimental condition. She always delivered better than 80% phase-appropriate praise. The next six columns labeled General Praise Delivered and Descriptive Praise Delivered, show the subject behaviors which praise was contingent upon. The data indicate that a change did occur along this parameter. During the natural baseline, the teacher delivered most of her praise (4.5 out of 5.0, or 93%) contingent upon attending. Relative to the natural baseline, much more of the teacher's praise occurred contingent upon concurrent attending and hand-biting during the remaining experimental conditions. For example, during the descriptive praise I phase, 4.2 out
of 6.2 comments delivered or 67% of her praise was contingent upon attending alone. The remaining 33% of praise comments occurred contingent upon concurrent attending and hand-biting. Under the heading of Other Teacher Interactions, the data suggest that the teacher followed the instructions to interact as usual with the subject in situations other than when she praised. The teacher tended to interact with the subject about 14 times per session contingent upon attending, three times contingent upon concurrent attending and hand-biting, and one or two times following other subject behavior per session. The number of classroom tokens delivered to the subject remained fairly constant at a mean of three delivered per experimental session for each experimental condition. Token delivery tended to follow attending behavior either alone or when concurrent with hand-biting.

Child behaviors

One purpose of the present study was to evaluate the relative effectiveness of general versus descriptive praise in increasing behaviors they were made contingent upon. The data on child behaviors were thus first examined to determine if there was any systematic change in occurrence of the appropriate behavior (attending) under the different experimental conditions. Figure 1 shows the percentage of 10-second intervals recorded in which attending occurred for each experimental session. In sessions 1-13 (natural baseline), the mean percentage attending was 47% of the intervals recorded (range 25-72%). Since the teacher used mainly general praise comments in this experimental condition (97% general praise comments), the data obtained indicate how well
FIGURE 1

PERCENTAGE OF 10-SECOND INTERVALS IN WHICH ATTENDING OCCURRED

- Natural Baseline (General Praise)
- Descriptive Praise I
- Descriptive Praise II
- Baseline
- General Praise & Special Tokens
- Descriptive Praise & Special Tokens

Drawing showing data points for different conditions and sessions, with annotations for reliability observer's data and mean for experimental phase.
the subject attended when general praise followed attending. In sessions 14-23 (descriptive praise I), the subject was observed to attend during a mean of 62% of the intervals recorded (range 46-84%). This represented an increase in mean attending of 15% relative to the natural baseline condition. It should be noted, however, that this mean increase in attending was largely the result of increased attending during the first five sessions of the descriptive praise I condition. Thereafter, attending showed a generally downward trend which extended through the next experimental condition.

Although there was an average increase in the subject's attending during the descriptive praise I condition, the subject was not attending enough to meet the teacher's requirements. Thus, a subsequent descriptive praise condition was instituted during which the teacher delivered twice as many praise comments (10 per session). The percentage of attending continued to decrease to a mean of 57% (range 40-75%) for that experimental condition. A short return to baseline conditions (sessions 32-34) resulted in mean attending of 50% (range 42-57%). This compared favorably to the mean observed for the natural baseline condition.

The last two experimental phases were shortened in number of sessions since the end of the school year was near. Under the general praise and special tokens condition (sessions 35-40), attending occurred during a mean of 70% of intervals recorded (range 64-78%). This represented a mean increase in attending of 20% relative to the preceding experimental condition. Due to the subject's frequent absence from school, only three experimental sessions were conducted under the final
experimental condition of descriptive praise and special tokens (sessions 41-43). Under the descriptive praise and special tokens phase, the subject was observed to attend during a mean of 64% of intervals recorded (range 51-78%).

There were many days throughout the course of this experiment when experimental sessions were not conducted because of subject and/or teacher absences. Of a possible 61 school days in which sessions could have occurred, only 41 experimental sessions took place. There were also several occasions when three or four days elapsed between experimental sessions. An additional result of the subject's frequent absences was that none of the extra-curricular trips occurred that were planned to back-up the special token contingency in the last two experimental phases.

Another purpose of the present study was to evaluate the effect of general and descriptive praise on an inappropriate behavior which often occurred concurrent with the appropriate behavior that was specifically reinforced. Figure 2 shows the percentage of 10-second intervals in which hand-biting occurred for each experimental session. During the natural baseline phase, the subject was observed to bite his hands during a mean of 41% of intervals (range 0-80%). As can be seen in the figure, the occurrence of hand-biting was quite variable. Under the descriptive praise I phase, the mean percentage increased to 53% (range 2-86%). When twice as much descriptive praise was delivered for attending during the descriptive praise I phase, there was no change noted in hand-biting occurrence relative to the previous phase. Mean hand-biting was 54% per experimental session (range 12-90%). Under the
FIGURE 2

PERCENTAGE OF 10-SECOND INTERVALS IN WHICH HAND-BITING OCCURRED

Natural Baseline (General Praise)  Descriptive Praise I  Descriptive Praise II  Baseline  General Praise & Special Tokens  Descriptive Praise & Special Tokens

- Reliability Observer's Data
- Mean for Experimental Phase

PERCENT OF 10-SECOND INTERVALS

SESSIONS

1  5  10  15  20  25  30  35  40  45
return to baseline condition, the occurrence of hand-biting remained at a mean of 53% (range 10-77%). During the general praise and special tokens condition, hand-biting was observed at a mean of 56% (range 38-70%) and decreased to a mean of 47% (range 33-61%) during the descriptive praise and special tokens phase. Thus, after the initial increase in hand-biting observed during the descriptive praise 1 condition, hand-biting remained relatively constant for the remainder of the study.

The total time measurements of attending and hand-biting indicated that the 10-second interval measurement resulted in a valid sample of these behaviors. Total time measurements of attending occurred during sessions 3, 4, 16, 17, 25, 26, 36, and 37. To assess how well the 10-second interval measure tracked total time measurement, the relative change between successive sessions was computed for each measurement method. The degree to which relative change was the same for the two methods was taken as the measure of tracking. Relative change for a measurement method was computed by dividing the second session (of a pair) data by the first session’s data, multiplying the dividend by 100, and subtracting 100 from this figure. The top half of Table 2 shows the session data on attending obtained by each measurement method. In addition, the resulting percent relative change between successive sessions for each measurement method is shown. The plus (+) and minus (-) signs seen in the relative change rows indicate the direction of change between sessions; either increasing (+) or decreasing (-). As can be seen in the Table, the two measurement methods always agreed in the direction of change recorded and were in close agreement as to the
percentage of relative change. For example, looking at the first main column, sessions 3 and 4, the 10-second interval measurement method yielded 52% attending in session 3 and 71% attending in session 4, resulting in a percent relative change of +36%. The total time measurement method yielded 43% attending in session 3 and 59% attending for session 4, resulting in a percent relative change in +37%. Total time measurements of hand-biting occurred during sessions 6, 7, 21, 22, 29, 30, 34, and 35. Relative change between successive sessions for each measurement method was computed in the same manner as for attending.

The bottom half of Table 2 shows the session data on hand-biting obtained by each measurement method and the resulting percent relative change between successive sessions. The 10-second interval measurements tracked the total time measurements very well. Once again, percent relative change obtained from the two methods always agreed in direction and were in very close agreement concerning percent change.

Figure 3 shows the percentage of 10-second intervals in which both attending and hand-biting occurred concurrently. Under the natural baseline phase, mean concurrency was 24% (range 0-61%). In the subsequent phases, means and ranges were: 33% (range 2-58%) during descriptive praise I; 29% (range 8-52%) during descriptive praise II; 26% (range 6-38%) during the return to baseline; 36% (range 23-50%) during general praise and special tokens; and 27% (range 14-35%) during descriptive praise and special tokens.
### TABLE 2

Data Obtained by 10-second Interval and Total-time Measurement Methods and Percent Relative Change between Successive Sessions by Measurement Method

#### ATTENDING

<table>
<thead>
<tr>
<th>Measurement Method</th>
<th>Sessions</th>
<th>3</th>
<th>4</th>
<th>16</th>
<th>17</th>
<th>25</th>
<th>26</th>
<th>36</th>
<th>37</th>
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<tr>
<td>10-second Interval</td>
<td></td>
<td>52%</td>
<td>71%</td>
<td>84%</td>
<td>69%</td>
<td>46%</td>
<td>56%</td>
<td>64%</td>
<td>75%</td>
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<tr>
<td>Total Time</td>
<td></td>
<td>43%</td>
<td>50%</td>
<td>74%</td>
<td>66%</td>
<td>42%</td>
<td>51%</td>
<td>59%</td>
<td>68%</td>
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<tr>
<td>Relative Change by</td>
<td></td>
<td>+36%</td>
<td>-18%</td>
<td>+22%</td>
<td>+17%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative Change by</td>
<td></td>
<td>+37%</td>
<td>-11%</td>
<td>+21%</td>
<td>+15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total Time</td>
<td></td>
<td></td>
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#### HAND-BITING

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<th>7</th>
<th>21</th>
<th>22</th>
<th>29</th>
<th>30</th>
<th>34</th>
<th>35</th>
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</thead>
<tbody>
<tr>
<td>10-second Interval</td>
<td></td>
<td>63%</td>
<td>26%</td>
<td>79%</td>
<td>40%</td>
<td>90%</td>
<td>43%</td>
<td>73%</td>
<td>70%</td>
</tr>
<tr>
<td>Total Time</td>
<td></td>
<td>56%</td>
<td>19%</td>
<td>72%</td>
<td>35%</td>
<td>78%</td>
<td>37%</td>
<td>68%</td>
<td>68%</td>
</tr>
<tr>
<td>Relative Change by</td>
<td></td>
<td>-59%</td>
<td>-45%</td>
<td>-52%</td>
<td>-4%</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative Change by</td>
<td></td>
<td>-66%</td>
<td>-51%</td>
<td>-53%</td>
<td>0%</td>
<td></td>
<td></td>
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<tr>
<td>Total Time</td>
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</tr>
</tbody>
</table>
Figure 3

Percentage of 10-second intervals in which both attending and hand-biting concurrently occurred.

Natural Baseline (General Praise)
Descriptive Praise I
Descriptive Praise II
Baseline General Praise & Special Tokens
Descriptive Praise & Special Tokens

Percentage of 10-second intervals

Sessions

- Reliability Observer's Data
- Mean for Experimental Phase
Discussion

The first question this experiment was designed to address was whether or not descriptive praise was more effective in increasing the occurrence of behavior than general praise. The data obtained in the experiment do not provide an adequate answer to this question. As seen in Figure 1, neither form of praise had much differential effect on attending behavior. There did appear to be an increasing trend in the percentage attending recorded which developed in the first five experimental sessions of the descriptive praise I phase. This temporary increase could have been due to rule-governed effects of the descriptive praise. It might be argued that the descriptive praise, when first introduced in the descriptive praise I phase, provided an implied rule that future attending during spelling lessons would result in the subject obtaining more reinforcers. When more reinforcers were not obtained following increased attending behavior, the rule the descriptive praise provided may have ceased to have effect since it did not provide a valid description of the contingencies in effect. It should be recalled that the number of classroom tokens delivered, number of praise comments delivered, and other teacher interactions were held constant throughout the experiment.

Perhaps a more important question relative to this experiment is whether teacher praise functioned as a reinforcer at all for this subject. It appears that for the experimental conditions studied attending behavior was most effectively increased by the use of a special token contingency in combination with general praise. General praise employed
alone in the natural baseline and return to baseline phases did not result in nearly as much attending as that recorded during the general praise and special tokens phase. Thus, it might be concluded that the increase in attending behavior observed in the latter phase was primarily a result of the special token contingency. Further reason to question the effectiveness of teacher praise as a reinforcer for this subject is found in looking at the data for the descriptive praise I and descriptive praise II phases. Most of the data for attending behavior under these two phases were well within the range of attending observed during the natural baseline phase, even though the number of praise comments delivered to the subject was doubled in the descriptive praise II phase. If praise was functioning as a reinforcer, one might have expected to see an increase in attending behavior between the descriptive praise I and descriptive praise II phases. Since there was no experimental phase in this experiment in which no teacher praise was delivered to the subject, the reinforcing effect of teacher praise cannot be determined for certain. However, the two points raised above would seem to suggest that the teacher's praise may not have been functioning as a reinforcer for this particular subject.

The significance of the increase in attending behavior observed during the general praise and special tokens phase might be questioned since most of the data points during this phase fell within the range of the natural baseline data. However, in addition to a mean increase in attending of 23% relative to the natural baseline, the data appear somewhat more stable under the general praise and special tokens phase. This increased stability might be taken as an additional indication
that attending behavior came under the control of the contingencies in effect during the general praise and special tokens phase. The occurrence of attending did decrease somewhat during the short descriptive praise and special tokens phase. This was quite possibly due to a weakening of the special token contingency when it was not backed up by the occurrence of the extra-curricular trips.

The second question this experiment was designed to address was whether or not one can use descriptive praise without concern for possible reinforcing effects on other concurrent behavior.

For the reasons cited previously, it is questionable that teacher praise functioned as a reinforcer for this subject. Thus, there seemed little likelihood that praise delivered for attending would have an effect on the sometimes concurrent hand-biting behavior. Looking at Figure 2, the only major increase in hand-biting occurrence was observed during the descriptive praise I condition. Hand-biting remained essentially at the same level for the remainder of this study. Since occurrence of hand-biting did not change in subsequent phases, it seems probable that other variables than those manipulated in this study caused the increase.

Concerning the teacher behaviors in this experiment, it was noted that most recorded teacher behaviors remained constant throughout the experiment. An exception was the amount of teacher praise delivered following concurrent attending and hand-biting. There was a large difference in the percentage of praise delivered following concurrent attending and hand-biting behaviors between the natural baseline phase and the subsequent phases. This, of course, could have resulted from an
increase in the occurrence of the concurrent behaviors; however, concur-
rent occurrence of attending and hand-biting did not increase
greatly in the experimental conditions subsequent to the natural base-
line as can be seen in Figure 3. A close analysis of the distribution
of praise comments within experimental sessions revealed that the
teacher had altered the distribution of her praise within sessions.
In the natural baseline phase, the teacher delivered most of her
praise comments following answers the subject gave to questions about
the spelling lesson. Since the subject rarely had his hand in contact
with his mouth when he talked, there was a low probability that concur-
rent attending and hand-biting would be praised. However, under the
subsequent experimental phases, the teacher frequently praised at times
other than when the subject answered questions. Since the subject
tended to hand-bite more often at times other than when he talked,
there was a higher probability that concurrent attending and hand-biting
could be praised.
EXPERIMENT II

Method

Setting

The second study took place in an empty classroom in the same building as the first study. The therapist in this case was initially a graduate student receiving course credit for working in this classroom.* The subject and therapist were the only ones in the room except for an additional observer when reliability checks occurred. The subject and therapist sat opposite from one another and facing each other across a 4' x 10' table at one end of the room. Five feet behind the subject was a large blackboard mounted on the wall.

Sessions of the study were run from 9:45 a.m. to 10:15 a.m., five days a week, when possible. At that time, the therapist worked on a combination enunciation-sentence development lesson. The subject was given a pile of 18 word cards placed in front of her and was asked to make a sentence using each one. The words on the cards had been recommended by the child's speech therapist as offering opportunities to work on medial and final "t" and "d" sounds. There were a total of 40 such words on braille cards from which the therapist randomly selected 18 for the child to work with. This process was repeated twice per session; thus, a total of 36 sentences were generated per session.

*After the 12th session, the graduate student stopped working in the room; and the experimenter took her place as the therapist.
Subject

The subject, Mary, was a visually impaired 13-year-old girl in the same program as the subject in Experiment I. Her blindness was total in that she could not perceive even a bright light shone directly in her eyes. Academically, she functioned on a second to third grade level. She had been described as overweight and lethargic. She rarely initiated interactions with peers, frequently complained, and "gave up" quickly on tasks she was capable of doing. Two additional problems her teacher was concerned about were the frequent short sentences she used in vocabulary exercises and the lack of proper head orientation to the person she was speaking to.

Behavior definitions and recording

The behaviors involved in constructing long sentences and maintaining proper head orientation were considered as being ameanable to the study. The two could easily occur concurrently; and in pre-baseline observations, proper head orientation occurred about half of the time when the subject spoke sentences to the therapist. Once again, this median frequency would hopefully allow easy detection of either increasing or decreasing effects of independent variables applied. To find a median level of sentence length, measurements were taken of current sentence lengths (number of words). The number was chosen of which 40% of her sentences were composed. This was found to be nine words. Thus, nine or more words were taken as the criterion sentence length that would be reinforced. The definition of appropriate sentence length
Appropriate sentence length. A sentence had to include at least a subject, a verb, and an object and had to be composed of nine or more words. Pronouns (he, she, etc.), articles (a, the, etc.), and contractions (can't, didn't, etc.) were each counted as one word.

Reliable measurement of appropriate head orientation was accomplished by designing a lightweight head set which projected a beam of light behind the subject. The light projected a small spot on the blackboard behind the subject's head; and as she turned her head, the spot also moved across the blackboard. The subject was initially asked to turn her head slowly from side to side while the therapist signaled when she felt the subject had turned her head too far away from center to be considered as looking at her. The outermost point of the spot of light at that position was marked on the blackboard for orientations of the head to both left and right of center. Two vertical lines eight inches apart were drawn through these points to allow an easy referent for head orientation. A plus (+) was drawn at the midpoint between the lines when the subject's head was level, which thereon acted as a focusing point for placement of the head set prior to each session. The distance between the two vertical lines was kept constant throughout the study. Appropriate head orientation was thus defined as follows:

Appropriate head orientation. Beginning when the subject said the first word of a sentence and ending after the last word in the sentence, if the spot of light was entirely between the vertical lines drawn on the blackboard for four consecutive seconds, the subject was considered to have proper head orientation for that trial.

In addition to recording sentence length and head orientation, the therapist also recorded whether or not she had praised and what type of
praise she had used. (The therapist had been given the same definitions of general and descriptive praise as those used in Experiment I.) Concurrency of the two behaviors was scored after each session by the experimenter who reviewed the data sheet and scored concurrency for any sentence during which the subject had emitted both an appropriate sentence length and appropriate head orientation.
Procedure

Natural baseline

After the therapist was instructed in the definitions of the dependent variables and the two types of praise, she was asked to record the data during the sessions. The therapist was not given any instruction as to how to praise but was simply asked to present the word cards to the subject as she had been and to record sentence length, head orientation, and type of praise given for criterion sentence lengths for each sentence the subject spoke. The experimenter also observed for the first four sessions, gave the therapist feedback on what he had observed, and took data on the length of praise comments the therapist used.

Descriptive praise

The therapist was given feedback that she had been praising criterion responses nearly 100% of the time. For this phase, the therapist was asked to use only descriptive praise statements while she continued to interact with the subject as she had under natural baseline conditions. The experimenter and the therapist then drew up a list of six descriptive praise statements that she would be comfortable using. Each was four to five words in length, which matched the average length of general praise statements the therapist had been observed to use under the natural baseline conditions. The descriptive praise statements used were:

1. That was a long sentence.
2. Good. Real long sentence, Mary.
3. Wow, that had (number of) words.
4. Very nice long sentence, Mary.
5. Fantastic. A long sentence, Mary.

For variation, it was agreed that the therapist could change word order, i.e., saying the child's name first instead of last; but the number of words used remained the same.

After the second session of this phase, the experimenter began acting as the therapist since the graduate student had to stop working in this classroom.

General praise

Since the therapist had used only general praise statements under the natural baseline condition, this phase was essentially a return to baseline. The experimenter interacted and recorded as before but now used only general praise comments.

Descriptive praise

Experimental conditions were the same as under the previous descriptive praise phase.

Observer reliability

An independent observer was given the list of behavior definitions, asked to study them, and allowed to ask questions prior to each reliability assessment. The observer sat four feet behind and three feet to
the left of the therapist and recorded the same data as the therapist recorded. Observer reliability was assessed twice per experimental condition.
Results

Observer reliability

Observer reliability checks occurred during sessions 2, 7, 14, 17, 22, 26, 32, and 36. Scored trial reliability and unscored trial reliability were computed as in Experiment I for each behavior recorded. That is, the number of inter-observer agreements and disagreements was tallied for each trial in which either observer had recorded a given behavior, the number of agreements was divided by the sum of agreements and disagreements, and the result multiplied by 100 to obtain a percentage scored trial reliability. This method was repeated for experimental trials in which either observer had not recorded a given behavior as having occurred to obtain a percentage unscored trial reliability for each behavior recorded. Mean scored trial reliability for this experiment was 94% (range 88-100%). Mean unscored trial reliability for this experiment was 96% (range 90-100%). The data obtained by the independent observer is plotted in the appropriate Figure (4, 5, or 6).

Therapist behaviors

The first three columns of Table 3 show the mean number of praise comments delivered per session and the percentage of this praise that was general or descriptive for each experimental condition. The remaining columns show the mean number of praise comments per session that were contingent upon the different behaviors for each experimental
TABLE 3

Mean Number of Praise Comments Delivered per Session, Percentage of Praise that Was General or Descriptive, and Mean Number of Praise Comments Contingent upon Subject Behaviors by Experimental Phase for Experiment II

<table>
<thead>
<tr>
<th>Experimental Phase</th>
<th>Mean Number of Praise Comments</th>
<th>Percent General</th>
<th>Percent Descriptive</th>
<th>General Praise Delivered</th>
<th>Descriptive Praise Delivered</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>H. O.</td>
<td>S. L.</td>
</tr>
<tr>
<td>Natural Baseline</td>
<td>13.4</td>
<td>100%</td>
<td>0%</td>
<td>0.4</td>
<td>6.1</td>
</tr>
<tr>
<td>(General Praise)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Descriptive Praise</td>
<td>22.7</td>
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<td>100%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Baseline</td>
<td>18.1</td>
<td>100%</td>
<td>0%</td>
<td>0.1</td>
<td>12.2</td>
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<tr>
<td>(General Praise)</td>
<td></td>
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<tr>
<td>Descriptive Praise</td>
<td>27.6</td>
<td>0%</td>
<td>100%</td>
<td>0</td>
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</tr>
</tbody>
</table>

H. O. = Head Orientation; S. L. = Sentence Length; C. = Concurrent Occurrence of Head Orientation & Sentence Length

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condition. Looking at the first column, the therapist delivered a mean of 13.4 praise comments per session during the natural baseline. The therapist tended to praise each occurrence of appropriate sentence length during the natural baseline phase; and, thus, the number of praise comments delivered varied directly with the number of appropriate sentence lengths the subject emitted. This practice was maintained throughout the experiment and is reflected in Table 3 by the different mean number of praise comments delivered during each experimental phase. The next two columns, labeled Percent General and Percent Descriptive, indicate that the therapist delivered only general praise during the natural baseline phase. In subsequent phases, the therapist consistently delivered only the type (general or descriptive) of praise that was planned for that phase. The next six columns, labeled General Praise Delivered and Descriptive Praise Delivered, show the subject behaviors which praise was contingent upon. The data indicate that praise was consistently delivered contingent upon appropriate sentence lengths with very little praise following only appropriate head orientation. For example, during the natural baseline phase, only a mean of 0.4 out of 13.4 comments delivered, or 3% of praise delivered, was contingent upon appropriate head orientation alone. The remaining 97% of praise comments delivered were contingent upon either only appropriate sentence lengths or concurrent appropriate sentence lengths and appropriate head orientation. However, since appropriate sentence lengths were frequently concurrent with appropriate head orientation during both baseline phases, an appreciable number of praise comments were delivered following concurrent head orientation and appropriate sentence lengths.
lengths in these phases.

Child behaviors

The data on child behaviors were first examined to determine if there was any systematic change in occurrence of appropriate sentence lengths under the different experimental conditions. Figure 4 shows the percentage of trials recorded in which appropriate sentence lengths occurred for each experimental session. In sessions 1-10 (natural baseline), mean percentage appropriate sentence lengths was 41% of trials (range 25-47%). When descriptive praise was delivered contingent upon appropriate sentence lengths (sessions 11-20), mean percentage appropriate sentence lengths increased to 64% of trials (range 50-75%). In the return to the natural baseline conditions (sessions 21-31), when only general praise was delivered, mean appropriate sentence lengths decreased to 56% of trials (range 36-67%). Finally, in sessions 32-41, when once again only descriptive praise was delivered, the subject emitted appropriate sentence lengths in a mean of 76% of trials (range 61-89%). Figure 4 also shows that there was considerable variability in occurrence of appropriate sentence lengths during all of the experimental phases.

Figure 5 shows the percentage of trials in which appropriate head orientation occurred for each session of Experiment II. Mean percentage appropriate head orientation was 55% (range 47-64%) during the natural baseline phase. The mean decreased greatly to 5% (range 0-17%) when praise descriptive of long sentences was used in sessions 11-20. When only general praise for appropriate sentence length was once again
FIGURE 4
PERCENTAGE OF TRIALS IN WHICH APPROPRIATE SENTENCE LENGTHS OCCURRED

Natural Baseline (General Praise) | Descriptive Praise | Baseline (General Praise) | Descriptive Praise

- Reliability Observer's Data
- Mean for Experimental Phase
FIGURE 5

PERCENTAGE OF TRIALS IN WHICH APPROPRIATE HEAD ORIENTATION OCCURRED

- Natural Baseline (General Praise)
- Descriptive Praise
- Baseline (General Praise)
- Descriptive Praise

<table>
<thead>
<tr>
<th>Sessions</th>
<th>1</th>
<th>5</th>
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- Reliability Observer’s Data
- Mean for Experimental Phase
delivered in sessions 21-31, appropriate head orientation occurred more frequently than during the preceding descriptive praise condition, increasing to a mean percentage of 36% (range 0-61%). However, mean head orientation was 19% lower and its session-to-session occurrence more variable than during the natural baseline. When only descriptive praise was delivered for appropriate sentence lengths in sessions 32-41, appropriate head orientation decreased to a mean of 7% of trials (range 0-33%).

Figure 6 shows the percentage of trials in which both appropriate sentence length and appropriate head orientation occurred concurrently. During the natural baseline phase, mean concurrent head orientation and sentence length was 23% (range 14-44%). In the subsequent experimental phases, mean concurrent behavior was 3% (range 0-11%) during the first descriptive praise phase, 19% (range 0-42%) during the return to baseline, and 6% (range 0-33%) during the final descriptive praise condition.
FIGURE 6

PERCENTAGE OF TRIALS IN WHICH BOTH APPROPRIATE SENTENCE LENGTH AND APPROPRIATE HEAD ORIENTATION OCCURRED CONCURRENTLY

Natural Baseline (General Praise)  Descriptive Praise  Baseline (General Praise)  Descriptive Praise

PERCENT OF TRIALS

SESSIONS

- Reliability Observer's Data
- Mean for Experimental Phase
Discussion

The first question this experiment was designed to address was whether or not descriptive praise was more effective in increasing behavior than general praise. The data in Figure 4 indicate that occurrence of appropriate sentence lengths varied quite definitely with the type of praise used. In the first experimental phase that descriptive praise was used (sessions 11-20), there was a mean increase in appropriate sentence lengths of 23% relative to the preceding natural baseline phase which involved only general praise. Although occurrence of appropriate sentence lengths did not return to natural baseline levels in the subsequent return to baseline (general praise) phase, when descriptive praise was reintroduced in sessions 32-41, there was again an appreciable increase in occurrence of appropriate sentence lengths of 20% relative to the preceding baseline phase. Furthermore, this was a mean increase of 34% relative to the natural baseline. These data indicate that descriptive praise was more effective than general praise in increasing appropriate sentence length. It might be questioned as to whether appropriate sentence lengths increased as a result of the descriptive quality of praise delivered rather than as a product of more frequent reinforcement since more praise comments were delivered under both descriptive praise conditions than occurred in either baseline (general praise) conditions. Table 3 indicated that there was an average of 9.3 more praise comments per session delivered in the first descriptive praise phase than during the preceding natural baseline. In addition, an average of 14.2 more praise comments per
session were delivered in the final descriptive praise phase relative to the natural baseline. As was pointed out previously, however, this increase in mean number of praise comments delivered was a direct result of the increased number of appropriate sentence lengths emitted by the subject under both descriptive praise phases. Had general praise comments functioned as effectively to increase appropriate sentence lengths as descriptive praise, more praise comments could have been forthcoming in both baseline phases since the frequency of reinforcement was free to vary with the occurrence of sentence lengths under all experimental conditions. Of course, once the initial increase had occurred, more frequent reinforcement could have been responsible for maintaining the increased occurrence of appropriate sentence lengths observed.

The rapid changes in occurrence of appropriate sentence lengths seen in Figure 4 each time the therapist changed the type of praise delivered might also suggest a causal relationship between the type of praise delivered and occurrence of appropriate sentence lengths. It should be noted, however, that such a rapid change may indicate that more than a reinforcement effect was involved. When the therapist attempted to replicate the natural baseline conditions in the second baseline, it was noted that occurrence of appropriate sentence lengths did not return to the level observed during the natural baseline. This may have resulted of continued rule-governed effects on the emission of appropriate sentence lengths. As described in the introduction, the existence of a rule that describes the contingencies in effect may have a continued effect on future behavior that is similar in result to conditioning effects of contingency shaping, i.e., there is an increased
probability that the behavior described by the rule will occur in the future. The fact that occurrence of appropriate sentence lengths remained at a level higher than that observed during the natural baseline may be a reflection of such a generalization effect of the descriptive praise used in the preceding phase (sessions 11-20).

The second question this experiment was designed to address was whether the use of descriptive or general praise would differentially effect another appropriate behavior which often occurred concurrent with the appropriate behavior being reinforced. The data in Figure 5 indicate that occurrence of appropriate head orientation varied appreciably between experimental conditions in which descriptive or general praise was delivered contingent upon appropriate sentence lengths. Occurrence of appropriate head orientation tended to decrease greatly when descriptive praise was delivered contingent upon appropriate sentence length. One possible explanation for the observed changes in head orientation is that this behavior had been maintained during the natural baseline by the general praise which was delivered contingent upon appropriate sentence lengths but also was often accidentally contingent upon appropriate head orientation. Perhaps when the therapist described long sentences as the object of praise, the adventitiously occurring praise no longer functioned as a reinforcer for the head orienting behavior. Though some appropriate head orientations continued to occur and were still sometimes followed by praise, the future probability of appropriate head orientation was not increased as seen in Figure 5. This effect on superstitious behavior was noted previously as a possible result of the existence of a rule which states contingencies in effect.
Descriptive praise may be viewed as such a rule. Once again, however, just as occurrence of appropriate sentence lengths showed a rapid increase under descriptive praise conditions, occurrence of appropriate head orientation showed a rapid and immediate decrease under these conditions. This would seem to argue against reinforcement effects alone as responsible for the observed changes. An additional factor that may have contributed to the rapid change in occurrence of head orientation might be the discriminative effects of the descriptive praise. During experimental conditions when only general praise was delivered, the setting was appropriate for many behaviors to be reinforced; that is, the praise did not serve as a discriminative stimulus for one particular behavior. During the descriptive praise phases, however, whatever discriminative properties the praise had stressed one behavior (emission of long sentences) and ignored other behaviors. In conclusion, it would seem difficult to determine from the data obtained which of these two things occurred: (1) praise no longer functioned as a reinforcer for appropriate head orientation under descriptive praise conditions; or (2) head orientation was pretty much prevented from occurring by the discriminative aspects of a rule that stated long sentences would be reinforced in this setting. It seems quite possible that both points (1 and 2) contributed to the decrease in occurrence of head orientation observed during the descriptive praise conditions.

The data on concurrent occurrence of appropriate sentence lengths and appropriate head orientation in Figure 6 indicate that there was an overall decrease in occurrence of appropriate head orientation. That is, the concurrent occurrence of sentence lengths and head orientation
show the effect of the greatly decreased occurrence of appropriate head orientation observed during both descriptive praise conditions.
It is not clear that the data obtained will allow a conclusion as to the effectiveness of general versus descriptive praise as reinforcers. In Experiment I, neither form of praise showed a pronounced differential effect on the target behavior, attending. Although an increasing trend in the occurrence of attending was observed during the first five sessions in which descriptive praise was used exclusively, this trend soon reversed during subsequent sessions. In Experiment II, descriptive praise seemed clearly more effective than general praise in increasing occurrence of appropriate sentence lengths. Differences between the two experiments that might account for the differing results obtained included the possibility that praise was not functioning as a reinforcer for the subject in Experiment I. This would have left only rule-governed effects of the descriptive praise to influence attending differentially over general praise. Since the rule or analysis of contingencies in effect provided by descriptive praise was not a valid analysis of the actual reinforcement contingencies (because increased attending did not result in increased reinforcement), rule-governed effects might have been expected to be short-lived. In Experiment II, the rule provided by the descriptive praise was an accurate description of contingencies in effect since occurrence of reinforcers was free to increase with increased occurrences of appropriate sentence lengths. A general conclusion that this data might support is that a description of contingencies in effect (or rule) may not serve for long to affect
behavior differentially over general approving statements if the description is inaccurate.

The data obtained in Experiment II concerning the greater effectiveness of descriptive praise support the findings of Goetz & Salmonson (1972). In that study, descriptive praise was found to be more effective than general praise in increasing the number of new forms painted during creative easel painting. The differences between their results and those obtained in Experiment I of the present study may be due to the same differences noted between Experiments I and II of the present study. Since Goetz & Salmonson included an extinction baseline in their experimental design, they were able to demonstrate that praise was a reinforcer for their subjects. In addition, they reinforced each occurrence of new forms by their subjects just as each occurrence of appropriate sentence lengths was reinforced in Experiment II. Thus, any rule-governed effects of the descriptive praise Goetz & Salmonson used would have been an accurate analysis of the contingencies in effect in their study.

Concerning the second major question the present study was designed to answer (whether there is a differential effect of descriptive and general praise on concurrent behaviors), the results obtained are also not conclusive. In Experiment I, the only appreciable effect observed on hand-biting was the initial increase in mean occurrence of hand-biting observed during the first descriptive praise phase. Since the mean occurrence of hand-biting did not seem differentially affected by the subsequent experimental phases, there seems little cause to conclude that descriptive praise delivered caused the observed change.
In Experiment II, there appeared a pronounced, decreasing effect on the concurrent behavior of head orientation whenever descriptive praise was delivered contingent upon appropriate sentence lengths. Considering the direction of the effect (decreasing occurrence of head orientation), it seems most likely that this was a discriminative stimulus or rule-governed effect on the concurrent behavior.

In final conclusion, the present study:

1. Provided some data to support the greater effectiveness of descriptive over general praise in increasing occurrence of behavior. However, it is not clear as to whether this was due to reinforcement or discriminative stimulus functions of descriptive praise.

2. Provided some data to indicate that descriptive praise delivered contingent upon an appropriate behavior may decrease occurrence of a concurrent appropriate behavior.
REFERENCES


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