The Effects of Do-Say and Phase Sequencing on Correspondence Behaviors of Preschool Children

Catherine M. McManus

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THE EFFECTS OF DO-SAY AND PHASE SEQUENCING ON CORRESPONDENCE BEHAVIORS OF PRESCHOOL CHILDREN

by

Catherine M. McManus

A Project Report
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the requirements for the
Degree of Specialist in Education

Western Michigan University
Kalamazoo, Michigan
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THE EFFECTS OF DO-SAY AND PHASE SEQUENCING ON CORRESPONDENCE BEHAVIORS OF PRESCHOOL CHILDREN

Catherine M. McManus, Ed.S.
Western Michigan University, 1984

This study assessed the effects of a do-say procedure and phase sequencing on the correspondence behaviors of seven preschoolers. Three subjects received correspondence-content (Group A) phase sequencing training and four subjects received content-correspondence (Group B) phase sequencing training. During the Content Phase, subjects received reinforcement (socials, stickers, snack, etc.) for verbalizations about engaging in a pre-determined non-preferred activity. During the Correspondence Phase, subjects received reinforcement for verbalizations about the non-preferred activity only when they had actually engaged in play with that specific non-preferred activity. The results indicated that in most instances, reinforcement of verbalizations alone results in increases in those verbalizations about a specific activity, with little or no increase in the corresponding behavior with that activity. Also, the effects of a correspondence-content sequence versus a content-correspondence one are not clear. The results obtained from this study showed little variation as indicated by Baseline2.
ACKNOWLEDGEMENTS

I would like to acknowledge the guidance and assistance of Dr. Howard Farris, Dr. Neil Kent, Dr. Paul Mountjoy, Dr. Chris Koronakos, Dr. David Keenan and Michael Masters during the construction, implementation and writing of this project. Without their help, this project would not have been possible.

I sincerely thank you all.

Catherine M. McManus
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CHAPTER I

INTRODUCTION

The purpose of this study is to determine the effects of reinforcement and the sequencing of behaviors on correspondence behaviors of preschool children. Correspondence refers to saying something will be done and doing it (say-do) or doing something and saying it was done (do-say).

Most of the research in the area of correspondence training was conducted with the assumption that a functional relationship exists between verbal and non-verbal behavior (Karlan and Rusch, 1982). Lovaas (1961) hypothesized that the presumed functional relationship was due to reinforcing stimuli common to corresponding verbal and non-verbal behavior or because one acted as a discriminative stimulus for the other. Risley and Hart (1968) suggested that much of behavior therapy is based on the assumption that restructuring and reorganizing a client's verbal statements about his world and himself will result in a corresponding reorganization of the client's behavior with respect to that world. They suggested that alterations in non-verbal behavior could be produced by altering verbal behavior in convenient settings such as the therapist's office. Rogers-Warren and Baer (1967) suggested that developing correspondence between verbal and non-verbal behavior may be an efficient means of increasing pro-social behaviors.
Early research in the area of control of non-verbal behavior consisted of single treatment phases. The focus was on attempting to alter the related verbal behavior. Israel (1978) called this verbal conditioning. Such conditioning is exemplified by the work of Sherman (1964), Lovaas (1961 and 1964), and O'Leary (1968). Sherman (1964) and Lovaas (1961) found that the reinforcement of verbal statements had limited or minimal effects on the corresponding play behavior. Lovaas (1964) found that the verbal operants, "faster" and "slower", slightly increased or decreased the rate of lever pressing. O'Leary (1968) trained students to use self-instructions. Based on his results, he suggested that those who were trained produced fewer instances of "immoral behavior" than those who were not trained. Based on the above mentioned studies, it appears that altering verbal behavior alone has minimal effects on the corresponding non-verbal behavior. Lovaas (1961) suggested that verbal control may be the result of the individual's past history and the higher probability of receiving reinforcement for "doing what one is saying."

More recently a number of studies have been conducted which have involved both a verbal (content) component and a correspondence component. The verbal components (content) consisted of reinforcing a subject's verbalizations about what he did or was going to do, regardless of what he actually did or ended up doing. For example, in a do-say paradigm, all of the subject's verbalizations about what he did were reinforced. In a say-do paradigm, all of the subject's verbalizations
about what he was going to do were reinforced. The correspondence components consisted of reinforcing a subject's verbalizations about what he did or was going to do only when they were in direct correspondence with actual behavior (positive correspondence). For example, in a do-say paradigm, the subject's verbalizations were reinforced only when they were accurate as to what he had done. In a say-do paradigm, the subject's verbalizations were reinforced only after he did what he said he was going to do. Such studies include those by Rogers-Warren and Baer (1967), Israel and Brown (1977), Karoly and Dirks (1977), Israel (1973), Risley and Hart (1968) and Israel and O'Leary (1973).

Karoly and Dirks (1977), Israel (1973) and Israel and O'Leary (1973) contrasted say-do paradigms with do-say paradigms. All three studies used a baseline, content training, correspondence training sequence. The studies also used a play activity situation within a pre-school setting. The results of the studies indicated that in almost all cases, the say-do (saying something will be done and doing it) sequences resulted in greater increases in correspondence than the do-say (doing something and saying that it was done) sequences. Israel and O'Leary (1973) reported the percentage of individuals actually saying and doing rather than recording the two separately as the other studies had. The present study is similar to the above cited studies in that it will also use a content training, correspondence training sequence for one group and it will report the percentage
of saying and doing on an individual basis. It will also be similar in that it will involve a play activity situation within a pre-school setting. It will differ, however, in that it will use a do-say paradigm only.

The studies conducted by Risley and Hart (1968) and Rogers-Warren and Baer (1967) worked within the do-say format. Risley and Hart (1968) used two groups of six children. A content, correspondence training sequence was implemented. During the content training phase, children were rewarded socially and with a snack at the end of the day for reported use of a specific material during a free play period that had occurred earlier. They were reinforced regardless of their actual behavior. During the correspondence training phase, the children were similarly rewarded only for reports which corresponded to the actual use of that material earlier in the day. The present study is similar in that the reinforcement will be contingent on the same behaviors and circumstances. The results obtained indicate that reinforcement of verbal behavior alone initially resulted in an increase in verbal behavior and not the non-verbal behavior. After correspondence training occurred, reinforcement of the verbal behavior alone produces increases in both verbal and non-verbal behaviors. Thus, Risley and Hart (1968) speak of maintenance or "generalized correspondence". Israel (1973) questioned whether the procedure in fact produced such "generalized correspondence" or whether the obtained results were the result of the sequence involved. The present study is also similar in that it will
also use the do-say format.

The results obtained in the Risley and Hart (1968) study were presented as the percentage of children doing and the percentage of children saying the target behavior. Israel (1978) and Karlan and Rusch (1982) state that such reporting may permit the distortion of the results. Israel (1978) used the example in which five of the ten children were observed to say they would do X while the other five did X. As a result, this would be reported as 50 percent saying and 50 percent doing. This may lead to the conclusion that half of the individuals displayed correspondence when, in fact, possibly none did. Karlan and Rusch (1982) suggested that as a result, it is impossible to determine which individuals are contributing to which effects because individual data cannot be shown within or across sessions. The present study will contribute to the solving of this problem by collecting and graphing all data on an individual basis within all phases of the experiment.

Rogers-Warren and Baer (1976) demonstrated increased correspondence behaviors through the modeling and reinforcement of reports of sharing and praising. They thus used a do-say format. Rogers-Warren and Baer (1976) suggested that the say-do and the do-say formats are based on the same procedural approach. They suggested that the difference is that in the say-do sequencing, the opportunity to do occurs almost immediately, whereas in the do-say paradigm, the opportunity arises much later. Karlan and Rusch (1982) suggested that the act of
doing may be an antecedent for saying. Rogers-Warren and Baer (1976) suggested that the do-say sequences may have a greater range of control (time variable) and that, therefore, it may be more likely to produce generalization. The present study is similar in that it will also use a do-say format.

Israel and Brown (1977) conducted a study to investigate the role of the verbal content phase. They used two groups of preschool children in a play situation. One group was exposed to a baseline, content, correspondence, content sequence and the other was exposed to a baseline, correspondence, content sequence. The results indicated that reinforcement of verbalizations alone resulted in increased verbalizations without increases in correspondence. Reinforcement of both resulted in increased correspondence. Israel and Brown (1977) suggested that the content phase by conceptualized as a control procedure. The present study is similar to the Israel and Brown (1977) study in that it will also be conducted with a preschool population in a play situation. It will also use the same phase sequencing.

In general then, the present study expands on the available literature by increasing the amount of data on correspondence training and the effects of sequencing and will also attempt to resolve some of the methodological issues which have been of concern.

In the present study, the researcher reinforced verbalizations (saying the target behavior) made by the subjects when they were asked, "What did you do in here this morning/afternoon?" During the
second phase, the researcher reinforced only those verbalizations which corresponded to the non-verbal behavior (doing and saying the target behavior) in the morning/afternoon. The sequencing varied depending on the group. It was anticipated that reinforcement of verbalizations alone about engaging in the target behavior would result in increased verbalizations with no increase in the corresponding behavior. It was also anticipated that once in the correspondence training phase, the subjects would increase their percent of corresponding behaviors. It was anticipated that the rules given to the subjects during phases 1 and 2 would result in the subjects shifting their behavior to the least preferred activity. However, it was anticipated that there would be more correspondence (between non-verbal target behavior and verbal behavior) during the Content phase when the phases followed the Correspondence-Content sequencing. This was expected to be the result of the previous Correspondence training phase (the subjects had already been reinforced for corresponding behaviors only and, thus, it is likely that this would carry over into the Content phase). It was also expected that engagement in the target behavior and, therefore, occasions for related correspondence during Baseline_2 would be greater for the Content-Correspondence sequence than for the Correspondence-Content phase sequencing. This was expected to be the result of the temporal relationship between the correspondence training phase and Baseline_2 (closer temporal relationship in the Content-Correspondence sequencing).
CHAPTER II

METHOD

Subjects, Setting and Materials

Seven children, three to five years of age, who were enrolled at the Child Development Center (C.D.C.) served as subjects in this study. In compliance with the Center's policy, their parents were informed that the children would be taking part in a study which involved understanding how young children learn to honestly describe their activities by learning to "tell the truth" (See Appendix).

The study was conducted at the Child Development Center, a preschool and kindergarten conducted under the auspices of the Foundation for Behavioral Research. The classroom utilized was a large room divided into 8 ft. by 8 ft. sections. Storage shelves approximately 26 in. x 72 in. x 12 in. divided the room. Tables and chairs for the children were located in each separate section.

The materials used in the study consisted of play and recording materials. There were four types of play materials: blocks, watercolors and supplies, puzzles, and clay. The recording materials consisted of data sheets and a stopwatch.

Procedure

Experimental Design. The seven subjects were assigned to two groups.
An attempt was made to equalize the groups as much as possible in terms of age, days per week in attendance, sex, and preferred play activity. The two groups were exposed to different experimental sequences as defined below. Group A was given the sequence: baseline₁, content, correspondence and baseline₂; Group B was given the sequence baseline₁, correspondence, content and baseline₂.

Play Preference Assessment. All subjects were assessed over a five day period to determine which of the four play activities they least preferred. In order to assess their preferences and whether they could name the play activities, the following procedure was used. An experimenter approached a child selected to participate in the study and said, "Let's go play in the Opening Room." On the first day, the play period lasted twenty minutes. During that time, the child was encouraged to spend five minutes with each play activity. During each five minute period, he/she was asked, "What are you doing?" If he/she did not respond appropriately by saying something like, "I'm playing with the blocks", "I'm painting", etc., the experimenter prompted these verbalizations. If the child responded appropriately the first time, the experimenter prompted no further verbalization. On the second day the preference testing started. The play materials were arranged on a table so that each of the four were equally accessible. The experimenter led the child into the room and said, "You can play with any of the things on the table as long as you want."
The testing period lasted fifteen minutes. During this period the experimenter recorded the amount of time the child engaged in an activity. If the child changed activities, the same thing occurred. There were two testing periods a day; one in the morning and one in the afternoon. The testing continued for four days for a total of eight assessments.

Training Procedure. After the preferences were determined, the following procedure was utilized with all subjects. An experimenter approached the child and said, "Let's go play in the Opening Room." All the play materials were arranged on a table so that they were equally accessible. When the child entered the room, he was told, "You can play with anything you want." After the child selected an activity, the other materials were removed from the table and the child was allowed to play for five minutes. After the play period, the child returned to the classroom. All subjects in all phases of the experiment were treated as identically as possible during the play period (non-verbal half of each session) described above. This nonverbal portion of each session always occurred first and occurred once in the morning and once in the afternoon.

Sixty minutes after the play period, a sequence of events labeled the verbal period was initiated. It was the differing events that occurred during the verbal period that defined the phases of the experiment.
The verbal period began when an additional experimenter (two experimenters were used, one for the non-verbal period and one for the verbal period) approached the subject and said, "Let's go to the Opening Room." When in the Opening Room, the child was asked, "What did you play with in here this morning/afternoon?" (the second experimenter knew what the child's least preferred activity was, but did not know what the child did during the preceding play period 60 minutes earlier).

**Baseline.** During Baseline sessions, the play period (non-verbal portion) occurred first. Sixty minutes later, the verbal period occurred. During Baseline, the experimenter responded as positively as possible to any verbalizations by the child, regardless of the content of his/her verbalization. The child was given a variety of reinforcers to choose from (mini-snack, stickers, etc.) and allowed to choose one. There were two sessions per day.

**Content.** During the Content phase, the play period occurred first. Sixty minutes later, the verbal period occurred. During the Content phase, each child was first asked, "What things are here that you could play with?" Each child was then asked, "What did you play with in here this morning/afternoon?" The child was socially reinforced and given a choice of reinforcement only if he verbalized that he engaged in his least preferred activity (the target behavior). After the first 10 sessions of this phase, children who had not verbalized
the target activity were given a rule to do so. If the child did not verbalize the target behavior, the experimenter said, "No prize today. You have to say you played with (that child's low preferred activity)." If the child verbalized the target activity, the experimenter said, "O.K., what prize do you want? You said you played with (low preferred activity)." In order for reinforcement to occur, the child's verbalizations must have indicated some reference to the material or the activity, e.g., "Played with blocks", "painted", "put a puzzle together", etc. There were two sessions per day.

Correspondence. During the Correspondence phase, the play period occurred first. Sixty minutes later, the verbal period occurred. During the Correspondence phase, each child was first asked, "What things are here that you could play with?" Each child was then asked, "What did you play with in here this morning/afternoon?" During all sessions of the Correspondence phase, each child was socially reinforced and given a choice of reinforcement only for both engaging in the target behavior and for later saying that they did so. After the first 10 sessions of this phase, children who had not played with and had not verbalized the target activity were given a rule to do so. If the child did not play with and did not say he played with the target activity, the experimenter said, "No prize today, you have to play with (that child's low preferred activity) and say you played with (the low preferred activity)." If the child played with and said he
played with the target activity, the experimenter said, "O.K., what prize do you want? You said you played with (low preferred activity) and you really did, didn't you?"

**Baseline2.** The conditions to which the subjects were exposed during Baseline2 were identical to those to which they were exposed during Baseline1.

**Recording**

The following data were recorded for each subject.

<table>
<thead>
<tr>
<th>Occasion</th>
<th>Data Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. First day - Forced play.</td>
<td>Number of verbal prompts/play activity.</td>
</tr>
<tr>
<td>2. Preference testing.</td>
<td>Amount of time spent in each activity/sessions, activity per sessions, relevant responses.</td>
</tr>
<tr>
<td>3. Free play.</td>
<td>Activity chosen, amount of time playing, relevant verbalization.</td>
</tr>
<tr>
<td>5. Correspondence period.</td>
<td>Verbalization.</td>
</tr>
</tbody>
</table>

**Reliability Checks**

Reliability checks were taken by an independent observer on the following behaviors.

1. Amount of time engaged in each activity during preference
testing.

2. Free play - activity chosen - amount of time actually playing.

3. Content period - verbalization.

4. Correspondence period - verbalization.
CHAPTER III

RESULTS

Preference Assessment

Table 1 shows the rank ordering of activities played with during the five days of preference assessment for each subject in Groups A and B. The percentages were computed on the basis of time spent playing with each activity over the total amount of time. It was determined that the least preferred activities for Subjects 1, 2 and 3 in Group A were blocks, blocks and clay, respectively. It was also determined that the least preferred activities for Subjects 1, 2, 3 and 4 in Group B were clay, blocks, blocks and clay, respectively.

Group A (Table 2)

Subject 1 emitted no occurrences with the non-preferred activity (blocks) during the Baseline phase. Positive correspondence with the preferred during Baseline averaged 90.5%. Positive correspondence with the non-preferred during the Correspondence phase rose to 100%, however, this was out of 6 occurrences. Correspondence with the preferred dropped to 60% during the same phase. Positive correspondence with the non-preferred then rose to 100% (29/29) during the Content phase while correspondence with the preferred dropped to 36.4% (8/22). Baseline2 resulted in 94.1% correspondence with the non-preferred and 100% with the preferred (however, there was only 1 occurrence). In
Table 1  
Least Preferred Activity Percentages  
for Subjects in Group A and B

<table>
<thead>
<tr>
<th>Activity</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Blocks</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Watercolors</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>Puzzles</td>
<td>13%</td>
<td>30%</td>
</tr>
<tr>
<td>Clay</td>
<td>50%</td>
<td>29%</td>
</tr>
</tbody>
</table>
Table 2

Percentage of Positive Correspondence for Subjects in Group A

<table>
<thead>
<tr>
<th>Subject</th>
<th>B1</th>
<th>Corr.</th>
<th>Content</th>
<th>B2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pa 90.5%(38/42)(^c)</td>
<td>60%(15/25)</td>
<td>36.4%(8/22)</td>
<td>100%(1/1)</td>
</tr>
<tr>
<td></td>
<td>NP(^b) NO(^d)</td>
<td>100%(6/6)</td>
<td>100%(29/29)</td>
<td>94.1%(16/17)</td>
</tr>
<tr>
<td>2</td>
<td>P 54.2%(26/48)</td>
<td>45.2%(14/31)</td>
<td>10.3%(4/39)</td>
<td>3%(1/32)</td>
</tr>
<tr>
<td></td>
<td>NP NO</td>
<td>20%(1/5)</td>
<td>80%(4/5)</td>
<td>100%(3/3)</td>
</tr>
<tr>
<td>3</td>
<td>P 79.5%(35/44)</td>
<td>84.2%(16/19)</td>
<td>77.8%(7/9)</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>NP NO</td>
<td>100%(1/1)</td>
<td>100%(9/9)</td>
<td>83.3%(5/6)</td>
</tr>
</tbody>
</table>

\(^a\)p = preferred
\(^b\)NP = non-preferred
\(^c\) = numbers in parentheses indicate the number of instances of positive correspondence over the number of occurrences
\(^d\)NO = no occurrences
summary, positive correspondence with the non-preferred went from no occurrence during Baseline₁ to 94.1% correspondence during Baseline₂.

Subject 2 emitted no occurrences with the non-preferred activity (blocks) during the Baseline phase. Positive correspondence with the preferred during Baseline averaged 54.2%. Positive correspondence with the non-preferred was 20% while positive correspondence with the preferred averaged 45.2% during the Correspondence phase. Correspondence with the non-preferred then rose to 80% (however, 5 instances) while correspondence with the preferred dropped to 10.3% (4/39) during the Content phase. Baseline₂ resulted in averages of 100% (3/3) for the non-preferred and 3% (1/32) for the preferred. In summary, Subject 2's results showed much variability and inconsistency. Positive correspondence with the non-preferred went from no occurrences during Baseline to 100% (however, there were only 3 occurrences) correspondence during Baseline₂. The results were not as drastic as those of Subject 1.

Subject 3 emitted no occurrences with the non-preferred activity (clay) during the Baseline phase. Positive correspondence with the preferred during Baseline averaged 79.5%. Positive correspondence with the non-preferred rose to 100% (however, there was only 1 occurrence) and positive correspondence with the preferred was 84.2% during the Correspondence phase. Correspondence with the non-preferred then rose to 100% (9/9) while correspondence with the preferred dropped to 77.8% during the Content phase. Baseline₂ resulted in a positive
correspondence percentage of 83.3% (5/6) for the non-preferred and
no occurrences for the preferred. In summary, positive correspondence
with the non-preferred went from no occurrences during Baseline to
83.3% correspondence (however, there were only 6 occurrences) during
Baseline2.

Group B (Table 3)

Subject 1 emitted no occurrences with the non-preferred activity (clay) during the Baseline phase. Positive correspondence with the preferred during Baseline averaged 100%. Positive correspondence with the non-preferred rose to 100% (20/20) while correspondence with the preferred dropped to 78.6% during the Content phase. Positive correspondence with the non-preferred remained high (100%-65/65) while correspondence dropped even lower (33%) with the preferred during the Correspondence phase. Baseline2 correspondence percentages with the non-preferred remained high (100%-29/29) while correspondence with the preferred dropped to 0%(0/5). In summary, a positive correspondence with the non-preferred went from no occurrences during Baseline to 100% during Baseline2. This subject showed notable results throughout the entire study.

Subject 2 showed a 60% positive correspondence rate (only 5 occurrences) with the non-preferred activity (blocks) and an 82.9% rate with the preferred activity during Baseline. Positive correspondence with the non-preferred then rose to 100% (however, only 2 occurrences) during the Content phase. Correspondence with the preferred dropped
Table 3
Percentage of Positive Correspondence for
Subjects in Group B

<table>
<thead>
<tr>
<th>Phase</th>
<th>Subject</th>
<th>B1</th>
<th>Content</th>
<th>Corr.</th>
<th>B2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>100% (46/46)(^c)</td>
<td>78.6% (11/14)</td>
<td>33% (6/18)</td>
<td>0% (0/5)</td>
</tr>
<tr>
<td>1</td>
<td>pa</td>
<td>100% (20/20)(^d)</td>
<td>100% (65/65)</td>
<td>100% (29/29)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>np(^b)</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>82.9% (29/35)</td>
<td>39.4% (13/33)</td>
<td>60.5% (23/38)</td>
<td>64.3% (9/14)</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>60% (3/5)</td>
<td>100% (2/2)</td>
<td>100% (38/38)</td>
<td>100% (20/20)</td>
</tr>
<tr>
<td></td>
<td>NP</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>95.7% (44/46)</td>
<td>50% (10/20)</td>
<td>33.3% (1/3)</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>100% (2/2)</td>
<td>100% (6/6)</td>
<td>100% (82/82)</td>
<td>100% (27/27)</td>
</tr>
<tr>
<td></td>
<td>NP</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>95.8% (46/48)</td>
<td>33.3% (12/36)</td>
<td>66.6% (2/3)</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NP</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a_p\) = preferred
\(^b_{NP}\) = non-preferred
\(^c\) = numbers in parentheses indicate the number of instances of positive correspondence over the number of occurrences
\(^d_{NO}\) = no occurrences
to 39.4%. Positive correspondence with the non-preferred then drastically rose to 100% (38/38) while correspondence with the preferred was at 60.5% during the Correspondence phase. Positive correspondence with the non-preferred remained at 100% (20/20) while correspondence with the preferred was at 64.3% (9/14) during Baseline_2. In summary, Subject 2 went from 60% correspondence (only 3/5 occurrences) with the non-preferred to 100% during Baseline_2.

Subject 3 showed a 100% positive correspondence rate with the non-preferred activity (blocks) during Baseline (however, only 2 occurrences). Preferred correspondence averaged 95.7% (44/46). Correspondence with the non-preferred then rose to 100% (6/6) while correspondence with the preferred dropped to 50% during the Content phase. Positive correspondence with the non-preferred then drastically rose to 100% (82/82) while correspondence with the preferred dropped to 33.3% during the Correspondence phase. Baseline_2 also showed drastic results with a 100% correspondence rate with the non-preferred and no occurrences with the preferred. In summary, Subject 3 started at 100% correspondence rate with the non-preferred (only 2 occurrences) during Baseline and remained at a 100% correspondence rate (27 occurrences) during Baseline_2.

Subject 4 emitted no occurrences with the non-preferred during Baseline. Correspondence with the preferred resulted in a 95.5 percentage. Correspondence with the non-preferred then rose to 100% (however, only 1 occurrence) and correspondence with the preferred dropped
to 33.3% during the Content phase. The Correspondence phase then resulted in a 100% correspondence rate (74/74) with the non-preferred and a 66.6% rate with the preferred. Baseline₂ resulted in a 100% rate with the non-preferred and no occurrences with the preferred were emitted. In summary, Subject 4 went from no occurrences with the non-preferred during Baseline to a 100% correspondence rate during Baseline₂.

Reliability

An independent observer made reliability checks on one out of every four sessions during the preference assessment and all phases of the study. The researcher calculated reliability by dividing the agreements of the observer by the agreements plus disagreements, and multiplying the quotient by 100. Reliability measures yielded 100% agreement for all phases of the study.
CHAPTER IV
DISCUSSION

This study assessed the effects of a do-say procedure and phase sequencing on the correspondence behaviors of seven preschoolers. Three subjects received correspondence-content (Group A) phase sequencing training and four subjects received content-correspondence (Group B) phase sequencing training. During the Content Phase, subjects received reinforcement (socials, stickers, snack, etc.) for verbalizations about engaging in a pre-determined non-preferred activity. During the Correspondence Phase, subjects received reinforcement for verbalizations about the non-preferred activity only when they had actually engaged in play with that specific non-preferred activity.

For all subjects, the given rules and reinforcement for verbalizations alone or reinforcement for actually engaging in play with the non-preferred activity and corresponding verbalizations resulted in more contact with and, therefore, more chances or occurrences for positive correspondence with the non-preferred activity. For all subjects, there was a gradual shift from playing with a preferred activity to playing with the non-preferred activity. Although playing with the non-preferred increased, there were still instances of playing with the preferred toy.

The Correspondence-Content training sequence (Group A) produced variable results. One subject had to drop out of the study, and two others had poor attendance, resulting in less training and stabilization.
during the specific phases. It appears from looking at the Table, that the Correspondence Phase did not have much of an effect on the subjects' corresponding behaviors. There were few instances of positive correspondence with the non-preferred activity compared with the contact made with the preferred activity. This may be due to poor attendance and should be questioned. After entering into the Content Phase, two of the subjects increased correspondence rates with the non-preferred activity. It can also be seen by looking at the preferred activities during the Content phase that reinforcement resulted in increases in verbalizations, but little correspondence. Sherman (1964), Lovaas (1961), Risley and Hart (1968), and Israel and Brown (1977) all found similar results. When looking at Baseline\textsubscript{2} figures, two of the subjects (the same two as above) continued to display high rates of correspondence with the non-preferred activity. An indication of the above is that it does not appear that the Correspondence-Content training sequence results in less correspondence during the final Baseline phase (because of the temporal relationship between the Correspondence Phase and Baseline\textsubscript{2}). However, it does appear that the Content phase resulted in increases in verbalizations with no increases in the corresponding behavior. Again, the poor attendance of the subjects needs to be considered and the results of this group are questionable.

As can be seen from Table 3, the subjects in the Content- Correspondence training sequence (Group B) all revealed fairly predictable results. Subjects in the Content Phase emitted few occurrences with
the non-preferred activity (with the exception of Subject 1), however, many occurrences with the preferred activity. Correspondence between doing and saying the activity was low, which shows an increase in verbalizations about the activity, but little or no increase in correspondence. Again, it was found that altering verbal behavior alone had minimal effects on the corresponding non-verbal behavior. Once the subjects entered the Correspondence Phase where reinforcement was contingent upon doing and saying the non-preferred activity, there was a great increase in correspondence. These results closely resemble those found by Risley and Hart (1968) who also implemented a do-say paradigm with a content-correspondence sequence. When looking at Baseline₂ figures, it can be seen that correspondence with the non-preferred activity remained high with few instances of correspondence with the preferred activity. It appears from these results that the Content-Correspondence sequence resulted in a continuation of correspondence even when reinforcement was no longer contingent on correspondence. In comparing a Correspondence-Content sequence with a Content-Correspondence sequence, it is difficult to ascertain the effects the sequence has on corresponding behaviors. Both Groups A and B continued to emit high rates of correspondence with the non-preferred activity during Baseline₂. Therefore, the effects of the temporal relationship between the phases and Baseline₂ are questionable.

In comparing a do-say paradigm and a say-do paradigm, the effects of such procedures are questionable. In a do-say paradigm (Content
phase), the subject's verbalizations about what he did are reinforced. In a say-do paradigm, the subject's verbalizations about what he is going to do are reinforced. During the correspondence phase (do-say), verbalizations are reinforced only when they are accurate as to what the subject had done. During the correspondence phase (say-do), verbalizations are reinforced only after the subject did what he said he was going to do. A number of studies (Karoly & Dirks, 1977; Israel, 1977; Israel and O'Leary, 1973) have compared the two. In most instances, the say-do sequences have been found to result in greater increases in correspondence. However, all have resulted in increases. Rogers-Warren and Baer (1976) suggest that the two sequences are based on the same approach, with the exception that the opportunity to do occurs much later in the do-say paradigm. They suggest that the do-say paradigm may have a greater range of control (time variable) and that, therefore, it may be more likely to produce generalization. Risley and Hart (1968) thus speak of "generalized correspondence". As can be seen, the results from such studies are variable with both types of sequences (say-do and do-say) producing increases in correspondence. Whether one is clearly an advantage over the other is still a question which is unanswered.

In summary, the effects of a Correspondence-Content sequence versus a Content-Correspondence one are not clear. From the above results, there was little variation as shown by Baseline2. What does appear to be a result is the fact that in most instances, reinforcement of verba-
lizations alone results in increases in verbalizations with little or no increase in the corresponding behaviors.

One possible recommendation for future research in the area of correspondence training is to have all subjects receive an equal amount of training in all phases of the experiment. Poor attendance and variable training in the phases of this experiment (group A) may have had a drastic result on the effects or ability to compare the two groups or sequences. Another recommendation would be the implementation of a study similar to this one, only comparing the do-say and say-do paradigms in the same manner. Comparing the results of this study with one where a say-do paradigm was utilized may be questionable as the results of do-say versus say-do are not clear.

Another recommendation beyond the scope of this study would be to investigate the effects of intermittent reinforcement on correspondence behaviors. It is possible that an intermittent schedule might lead to greater maintenance or "generalized correspondence". Another recommendation might be to see whether the content phase or verbal training component is even necessary or effective in correspondence training. This might be investigated by comparing a Baseline, Correspondence, Baseline2 study with a Baseline, Content, Correspondence, Baseline2 study and vice-versa. If the content phase has little or no effect on the corresponding behaviors, then it may not even be needed. Training individuals in a "correspondence phase only" type of study using an intermittent schedule of reinforcement may be more effective
and may reflect more of the normal daily circumstances to which indi-
dividuals are exposed.
APPENDIX

PARENT AUTHORIZATION LETTER

Child ______________________
Room ______________________
Date ______________________

Dear _______________________,

During the next 10 weeks, I would like your child to participate in my master's research study for approximately 20 minutes each day. This study involves assessing your child's toy and play preferences; teaching him/her to accurately describe their activities; and to see if giving your child a small treat (raisins) for saying that they played with their least preferred toy will result in him/her playing with toys they do not normally use. During this part of the study, it is possible that your child may occasionally receive a treat for saying that they played with a specific toy, when in fact they did not. However, after the observation sessions have been completed, a discussion will be held with each child regarding the "game activities" he/she participated in.

Each session will be arranged so that your child will not miss important classroom activities.

Please contact me if you have any questions about your child's participation. I am looking forward to working with your child on this study for my thesis requirements and will let you know my general observations when completed.

Please sign and return this sheet to the office so that I will know you have agreed to your child's participation.

Sincerely yours,

Catherine M. McManus
Green Room Teacher

Parent Signature

David M. Keenan, Ph.D.
Director

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BIBLIOGRAPHY


