SWITCHING REQUIREMENTS IN A HEAD START CLASSROOM¹

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Two experiments were conducted by the mothers of the children in a Head Start classroom. Both examined the effects of a switching task on the frequency with which children moved from one activity area of the classroom to another. The results indicated that the rate at which the children changed activities could be adjusted by varying the difficulty or magnitude of the switching task and that the task itself could be used to introduce academic subjects which would be poorly attended if initially presented in an activity area.

There are occasions when the staff of a preschool classroom judges it desirable to exert some degree of control over the movement of children from one activity area to another. Excessive switching from one task to the next may detract from an atmosphere conducive to instruction and may also set the occasion for teachers to deal with the children more abruptly than necessary. In the laboratory, the frequency of switching between stimulus conditions can be controlled by manipulating the "response requirement" for switching (Findley, 1958). This suggests that an analogous procedure might similarly control the frequency of physically "switching" from one place to another. This report describes the effects of a switching task on the frequency with which children moved from one activity area of a preschool classroom to the next.

Setting

The study was conducted in the Parent Co-operative Preschool of the Juniper Gardens Children's Project in Kansas City, Kansas (*cf* Risley, 1968). The co-op class was conducted

in the gymnasium of the Community Center from 8:30 a.m. to 11:30 a.m. four days each week. The large undifferentiated room was divided into activity areas with 4-ft high movable partitions; the materials for the areas were stored in movable boxes so the entire classroom arrangement could be folded out of the way at the end of each day's session, thus allowing the space to be used for other purposes in the afternoon.

The classroom operated much like other Head Start classes except that it was staffed by the mothers of the children who attended. The mothers were divided into three groups of 10, and each group participated in operating the program on a three-week rotation basis. The children, of course, attended regularly. The mothers supervised the activity areas, conducted group instruction, tutored individual children, and assumed responsibility for moving the children through each day's program. The present study was concerned with the effects of a classroom management procedure executed by the mothers during that period of each morning when the children were free to enter and leave any or all of the five activity areas. Mothers and children involved in this study met Office of Economic Opportunity guidelines of poverty necessary for enrollment in Head Start.

Switching System

The essentials of this system were: (1) the explicit definition of the boundaries of each activity area (*e.g.*, block area, manipulative toy area, creative materials area, climbing area, pre-reading area), and (2) the use of a

¹The authors express appreciation to Dr. R. Vance Hall and to Mrs. Barbara Hughes for their invaluable assistance in all aspects of these studies and to Michael Kellerman for his assistance during Exp. I. This research was supported by Grants (CG-8474) from the Office of Economic Opportunity, Head Start Research and Demonstration, and (HD 03144) from the National Institute of Child Health and Human Development to the Bureau of Child Research and the Department of Human Development at the University of Kansas. Reprints may be obtained from Todd Risley, Juniper Gardens Children's Project, North Third and Stewart Streets, Kansas City, Kansas 66101.

switching task as a requirement for moving from one area to another. At the beginning of each session, the children were free to enter any area they might choose. When the switching task was employed, movement from the first area to another required that the child stop at a centrally located table and complete a simple matching problem (Exp. I) or academic task (Exp. II). Completion of this task enabled the child to select a ticket to enter an activity area of his choice. The child could stay in that area as long as he wished. Each move to another area required a stop at the central table and the completion of another task to obtain the appropriate ticket.

EXPERIMENT I

Procedures

During the initial year in which the switching requirement was employed, the switching task consisted of matching colored pegs on a pegboard. One or more "sample" rows of 10 pegs of assorted colors (red, yellow, blue, green) were arranged in the pegboard in a different sequence each day. For a child to enter an activity area, he was required to fill in the lower, adjacent rows with pegs that matched the color of these pegs. Any peg that did not match the color of the corresponding peg in the sample row was simply removed by

the supervising mother without comment. When a child completed the task and selected a ticket, his name was written on it and the ticket was stamped in a time clock. When the child subsequently left that activity area, his ticket was again stamped and retained by the teacher. The data on frequency of switches per hour were compiled from these tickets by dividing the number of tickets for each child each day by the total time he spent in the activity areas, as indicated by the times stamped on each ticket.

A switching requirement of one row of pegs was inserted for all children on the fourth day of the preschool year and was maintained at this level for most children throughout the year. During the last two months of the preschool year the level of the switching requirement was individually altered for five children by varying the number of rows on the pegboard matching task.

RESULTS

The average frequency of switches for the entire group of 30 children declined steadily from 5.5 per hr on the first day of the one-row switching requirement to 2.0 per hr by the thirteenth day, and remained at that level for the next 100 days of preschool. The average frequency of switches of each of the five children under various levels of the switching

Fig. 1. Daily switching rates of two children during periods of different switching requirements. The switching task consisted of matching 0, 1, 3, or 5 rows of colored pegs on a pegboard.

Table 1

<i>Child</i>	<i>Rows in Task</i>	<i>Days</i>	<i>Average Switches Per Hour</i>
H W	1	9	3.6
	3	8	1.1
	1	13	3.2
D K	1	9	3.5
	3	8	1.6
	1	12	2.5
P S	1	9	2.3
	0	14	3.9
C W	1	9	1.3
	0	13	2.6
	1	2	0.9
	0	7	3.7
M M	1	18	2.8
	0	16	5.5
	5	6	1.4

requirement is presented in Table 1. Daily switching rates of two of these children during various levels of the switching requirement are shown in Fig. 1. With all five children, rate of switching from area to area was an inverse function of the number of rows in the switching task; the more rows in the task, the lower the rate of switching.

EXPERIMENT II

Procedures

During the second year, the switching procedure was evaluated in three phases. During the first and third phases, the children were allowed to switch freely from one area to another with no intermediate stops. During the second phase, the switching task required that area tickets be earned at the central table by placing 10 to 30 individual letters or 3 to 4 individual short words alongside matching letters or words on a sheet of paper. Observation and record keeping was accomplished by mothers seated at the entrances to each of the five areas. The observation and recording instruments consisted of a class roster and a 60-min kitchen timer. As each child entered or left an area, the entry and exit times were recorded beside the appropriate name on the roster by noting the number showing on the timer.

Reliability was checked in two ways. A second observer was occasionally stationed at the entrance to an activity area to make a

duplicate record of arrivals and departures. Another check resulted from the fact that two independent notations were made each time a child moved from one area to another. The exit time from one area was checked for correspondence with the entry time to another area or to the switching table so that a complete minute-by-minute record was produced showing the activity of each child throughout the observation hour each day.

RESULTS

Reliability across all conditions was essentially 100%, presumably because the entry or exit of a child from an area required him to pass immediately in front of the observers. For one month the mothers recorded the movement of the children from area to area when there was no switching task requirement. Their records during that time indicated that the children averaged approximately three switches per hour (average time in an area was 23 min). Seventy-seven per cent of the children averaged two or more (up to 11) switches per hour.

When the switching requirement was introduced, the rate of switching immediately dropped to approximately 1 per hr, and remained at that level. For the five days of this phase an average of only 18% of the children switched areas two or more times. Figure 2 shows that the removal of the switching requirement on Day 16 corresponded to an immediate increase in the amount of switching. During the seven days of the final phase, 64% of the children averaged two or more switches per hour.

The effects of the switching requirement varied from child to child. The greatest effect was observed for a child who averaged 5.4 switches per hour during the first phase, 2.2 during the second phase, and 5.9 during the third phase. The median effect was, respectively, 2.0, 0.6, 2.6; and the smallest effect was 3.0, 1.4, 1.3. For two children out of 18, the level of Phase 1 switching was not recovered during the third phase, although all children switched less during the second phase than during the first.

DISCUSSION

These investigations were conducted in order to determine the effects of several types

Fig. 2. Average number of switches per hour from one activity area to another under task and no-task conditions. The task consisted of matching letters or combinations of letters.

and magnitudes of "response requirements" on the level of switching activity in the classroom. The results indicated that the rate of switching could be adjusted by varying the difficulty or magnitude of the switching task. Findley (1958) found that the average rate of switching between stimulus conditions could be controlled by the response requirements for switching. This study indicated that pre-academic learning tasks could be similarly used to control the frequency of preschool children physically moving from one activity area to another. Premack has suggested that "of any two responses, the independently more probable one will reinforce the less probable one" (1963, p. 81). These effects might be interpreted in terms of the reciprocal of the "Premack Principle" (Premack, 1959) in which a presumed high-probability behavior (switching between activity areas) is reduced by requiring the child to engage in a presumed low-probability behavior (the switching task) contingent upon the high-probability behavior. However, in the absence of data on the independent probabilities of

the various behaviors involved, this interpretation can only be suggested.

The results also suggest that the switching task itself may be used to introduce academic subjects which would be poorly attended if initially presented in an activity area. In a situation where children are allowed to choose between playing with blocks and learning how to print letters, a number of factors may influence a preference for blocks. By inserting printing as the switching task, it may be possible to bring the children in contact with the instructional activity without having to plead and coax that they stay and finish the assignment before running off to another area. Further, success at the switching task immediately results in a consequence determined by the child's preference. Consequently, this management procedure allows access to the various materials and events in the preschool classroom to become subject-selected back-up reinforcers (Whitlock and Bushell, 1967) for academic behavior instead of reinforcers contingent only on physical movement from one place to another. Hart and Risley (1968) and

Reynolds and Risley (1968) have similarly found such materials and events to be effective and convenient reinforcers in preschool classrooms.

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Received 13 November 1968.