THE EFFECTS OF PRINCIPAL-IMPLEMENTED TECHNIQUES ON THE BEHAVIOR OF PUPILS¹

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Three investigations were conducted on the effects of various procedures initiated by a principal on the behavior of elementary school children. Seventy nine children including kindergarten, first, third, and fifth graders served as subjects. In Experiment I, when three chronically absent children attended school, the principal entered their classrooms and praised them for being present. In Experiment II, three low-achieving subjects were sent to the principal's office to receive praise contingent on meeting predetermined criteria in word-recognition and addition tutoring sessions. Experiment III assessed the effects that a procedure implemented by a principal had on the academic functioning of 74 third graders. Twice weekly in two classrooms the principal recognized both improving students and the highest performing students for their work on addition study sheets. In all three experiments, the target behaviors increased when the principal applied the treatment contingencies. The application of multiple baseline designs revealed a functional relationship between the children's behavior and the procedures implemented by the principal. Since the study was carried out in an overcrowded inner-city public school, it was suggested that the treatment procedures might be widely applicable.

Elementary school principals maintain a position of importance in the educational milieu (Eaves, 1969; Snyder, 1968; Stoop and Johnson, 1967). The techniques and procedures used by them in their professional endeavors therefore merit investigation. Principals are expected to implement procedures that directly affect the

behavior of teachers, parents, and children; yet, little data exist to verify the various suggested strategies principals are encouraged to institute.

To date, investigations involving the elementary principal have yielded evidence that a principal's professional behaviors can be changed favorably (Daw and Gage, 1967) and that a school principal can change deviant behaviors of children, (Brown, Copeland, and Hall, 1972; Copeland, Brown, Axelrod, and Hall, 1972). In the Brown *et al.* (1972) study, the elementary school principal systematically followed children's appropriate behaviors with various reinforcers. The treatment included: (1) administering tokens that were exchanged for money, (2) the opportunity to work on bicycles in the school basement, (3) signing in at the principal's office, and (4) the opportunity to play basketball with the principal. The behaviors of children the principal dealt with were: (1) arriving at school on time, (2) school attendance, and (3) disruptiveness in the classroom. All three experiments demonstrated that a school

¹This study is based on the first author's dissertation submitted to the Department of Human Development and Family Life, University of Kansas, in partial fulfillment of the requirements for the Doctor of Philosophy degree. The authors wish to thank the teachers of Bryant School and Superintendent of Schools Dr. O. L. Plucker, without whose cooperation this study would not have been possible. Reprints may be obtained from Rodney E. Copeland, Juniper Gardens Children's Project, 2021 North Third Street, Kansas City, Kansas 66101. This research was carried out as a part of the Juniper Gardens Children's Project and was partially supported by a grant (HD-03144) from the National Institute of Child Health and Human Development and the Bureau for the Education of the Handicapped (OEG-0-72-0253) to the Bureau of Child Research, the Department of Human Development, and the School of Education, University of Kansas.

principal could decrease the rate of children's maladaptive school behavior and increase appropriate behavior by using techniques compatible with the public school environment. In the study by Copeland *et al.* (1972), the principal followed school attendance with telephone calls of praise to parents for their child's attendance, but the principal did not attend to the target children at school. This technique significantly increased the children's attendance. It should be noted that although the same principal (Brown) administered the treatment programs in the Copeland *et al.* (1972) and Brown *et al.* (1972) studies, the Copeland *et al.* research took place in a school in which the principal had had no previous contact. In that study, he was supervising a summer program in a school located on the opposite side of the large inner-city district from his regular school. The treatment involved brief phone calls to parents the principal had never seen in person and did not see in person during the experiment; he also refrained from interacting with the target children in this study. It seems safe to conclude that the principal's personality and past history had very little effect on the parents and children involved.

The present study was an outgrowth of the authors' previous work. In the Brown *et al.* study, it was not clear which aspects of treatment (money, signing in, working on bicycles, and principal attention) were critical in bringing about increases in school attendance. Observations led the authors to conclude, however, that the positive interactions the subjects had with the principal were quite powerful. In the present study, therefore, the principal used his attention only, and eliminated the other aspects of the previous treatment programs. Also, in the previous attendance research, a problem was experienced in that some subjects signed in at the principal's office and received credit for attendance, yet failed to arrive at the classroom. In the present attendance research, the principal entered the classrooms and gave attention to target children, obviating this problem.

Another major extension was the principal's

involvement with children's academic functioning. The previous studies had dealt exclusively with social behaviors (attendance, promptness, disruptiveness), while the present studies investigated techniques a principal might use with children experiencing academic problems.

The three experiments were conducted in Bryant Elementary School in the Kansas City, Kansas public school system. Bryant is an inner-city school that had an enrollment of approximately 750 pupils when the research took place.

EXPERIMENT I

Subjects

One kindergarten girl and two first graders (one boy and one girl in different classrooms) having low school attendance records served as subjects.

Observations

The data used were routinely collected as a function of the school's daily operating procedures. There were two instances each school day in which a student could be counted absent. These occurred when school convened for the morning session and when school convened after lunch. The teacher made a record of those absent and present in a grade book, and a second record of those absent was forwarded on a memo to the principal's office. To check the reliability of the teachers' record-keeping procedures, an observer would periodically enter the rooms and make an independent record of the children absent and present.

Experimental Phases

Baseline. Before implementing treatment procedures, baselines were collected on the three subjects' daily attendance rates. Baseline measurement began in November. The baseline period for Subject 1 (Elbert) was seven weeks, for Subject 2 (Yolanda), 10 weeks, and for Subject 3 (Lynette), 12 weeks.

Principal praise. On the eighth week of data collection, the school principal began treatment

procedures with Elbert, while Yolanda and Lynette remained in the baseline condition. The treatment procedure consisted of the principal entering the classroom on each day that Elbert was present and differentially attending to Elbert regarding his presence in school. The content of the principal attention generally involved a pat on the back and a few words of praise for being in school. The duration of attention was never more than 60 sec and most often considerably less. On the tenth week, this procedure was initiated with Yolanda, and on the thirteenth week with Lynette.

Intermittent praise. On the twentieth week, the principal began entering the subjects' classrooms on an intermittent basis to deliver praise for school attendance. That is, he entered the classrooms two to three times a week, rather than daily. The same type of principal attention was delivered as in the previous condition.

RESULTS

Baseline. Figure 1 presents the three subjects' baseline rates of attendance. Each point represents the per cent the pupil was present during one week of school. Generally, one school week equalled five days; however, occasionally a week would involve only three or four days due to holidays and teachers' conferences.

The baseline records reveal that Elbert's mean rate of attendance during baseline was 51%, Yolanda's 53%, and Lynette's 41%.

Principal praise. Elbert's weekly mean rate of attendance during the daily principal-praise procedure was 83%. This represents a 32% increase over his baseline rate. Yolanda's mean level of weekly attendance increased from 53% to 79%, and Lynette's increased from a baseline mean level of 41% to a mean level of 85%.

Intermittent praise. The results of the intermittent principal attention were less encouraging. As can be seen in Figure 1, Elbert's mean weekly rate of attendance decreased to 70%, which was very near his previous baseline levels. Yolanda's mean rate of attending during this intermittent phase was 68%, and Lynette's

Fig. 1. Per cent of time three students attended school. *Baseline*-before experimental procedures. *Daily Principal Praise*-principal entered subjects' classrooms daily and delivered praise for school attendance. *Intermittent*-principal entered classrooms two or three times a week and delivered praise for school attendance.

mean weekly rate of attendance decreased to 56%.

EXPERIMENT II

Subjects

Three fifth-grade boys, identified by their teachers as capable but academically non-productive pupils, served as subjects.

Procedures and Observations

In Experiment II, a tutoring procedure was implemented in which the experimenter worked with the students individually on a daily basis in reading and arithmetic. Tutoring took place away from the classroom in a small room normally used for the administration of individual psychological tests. During tutoring, only one pupil and the experimenter were present, and the sessions were conducted so that very little interaction occurred between the experimenter and the one pupil. Reading tutoring involved

working on word-recognition skills and arithmetic tutoring dealt with addition skills.

In preparation for word-recognition tutoring, a pool of words the students pronounced correctly and another of words mispronounced were developed through pretesting each pupil. The words were selected from fifth-grade reading books in use at the school. For each student, 30 word cards were generated, with 10 words on each card. Seven of the words on each card were those the student had mispronounced in the pretesting, and three were those he had pronounced correctly. The 30 lists were then placed in a set order of one through 30 before baseline conditions were initiated.

In preparation for arithmetic tutoring, 12 sheets of addition problems were developed with 100 problems per page. Each problem on a page contained two, one- to two-digit numbers to add. A portion of the problems on each page involved carrying. The sheets were placed in a set order before baseline conditions. The arithmetic tutoring experiment was in effect for 24 sessions. In Session 13, the sheets were recycled so that the students were given sheet number 1 again in Session 13 and sheet number 2 again in Session 14, and so forth in the same set order.

Tutoring sessions were conducted in the following manner. The sessions were tape-recorded and the experimenter's verbalizations included only instructions and answers to questions a student asked about his lesson. The tutoring procedure lasted approximately 13 min, and was conducted in a consistent sequence.

First, a student was tested over the word list that had been presented to him the previous day. In the testing procedure, the experimenter pointed to each word on the testing card in succession and asked the pupil to pronounce it. The words were listed on the testing card in a different order than on the card given to the students for study. If after 20 to 30 sec no attempt had been made to pronounce a word, the next word was pointed to and the pupil was asked to "try this one". Self-corrections were accepted. That is, if a subject mispronounced a word on a first

attempt and spontaneously corrected himself, credit was awarded. As the students pronounced the words, the experimenter would score them correct (+) or incorrect (—) on the card from which the pupil was reading. Upon completion of testing, the experimenter, in the presence of the student, totalled the number of +'s and placed that number on the top of the card. Next, the pupil was presented with a new word-list card. The new word card was presented by reading each word orally to the pupil from the card and then informing him he had 5 min to study. He was also informed that if he had any questions about the pronunciations of the words the experimenter would answer his questions.

Following the 5 min of reading, a subject was then given 5 min to work on a math sheet. After 5 min, the experimenter scored correct and incorrect answers in the presence of the subject, totalled the number of correct answers, and placed that number on the top of the page. The subject was then asked to return to his room.

Another person listened to and scored approximately half the word-recognition tapes, and on two occasions an independent observer sat in on the tutoring sessions and scored the word-recognition testing procedure. The number of agreements plus disagreements between the two observational records was divided into the number of agreements and multiplied by 100 to obtain a per cent of agreement. The per cent agreement on the 38 word-recognition reliability checks ranged from 80 to 100% with a mean of 95.2. A second person also scored approximately one-fourth of the arithmetic sheets. Only those problems attempted came under scrutiny for reliability of measurement. The number of agreements plus disagreements between the two scorers on those problems attempted was divided into the number of agreements and multiplied by 100 to obtain a reliability index. The per cent of agreement on the arithmetic reliability checks ranged from 87 to 100, with a mean of 98.8.

Experimental Phases

Baseline. Baseline conditions were instituted initially in word-recognition tutoring and six days later in arithmetic tutoring. In baseline sessions, the subjects would go through the word-recognition and arithmetic tutoring process described above, receiving feedback on correct answers each day, but no scheduled attention for correct answers.

Principal praise. A combination within- and between-subjects multiple baseline design was used, with treatment procedures being introduced in the following sequence. Subject 1 (Edwin) received treatment procedures in word recognition and then Subject 2 (Terry) in word recognition. Next, Edwin received treatment procedures in math and then Terry in math. Finally, Subject 3 (Steve) was placed in treatment procedures simultaneously in word recognition and math. Generally, three to four sessions elapsed between treatment changes.

Treatment procedures involved the delivery of principal attention contingent on increases in number of words pronounced correctly and number of arithmetic problems worked correctly. To implement the treatment procedures in word recognition, the principal would see a subject at the close of his last baseline session and inform the subject he wanted to see if the subject could improve his scores in word recognition. A minimum criterion of eight words correct was set. Throughout this condition, then, if the subject pronounced eight or more words correctly on the test, he was immediately sent or taken to the principal by the tutor. The principal gave approximately 30 sec to 1 min of praise and attention to the subject and asked that he come back the next day if he got eight or more words correct.

The treatment procedures were implemented in math in the same manner as in word recognition. Each subject had to meet a different criterion in order to be sent to the principal to receive praise. Edwin had to work 60 problems

correctly, Terry 35, and Steve 40. When both curriculum areas were under treatment procedures, the subjects had to meet criterion in both areas to receive principal attention.

RESULTS

Baseline. Figure 2 presents the results of the word-recognition treatment procedures. Edwin's data indicate that during baseline he was pronouncing a mean of 5.3 words correctly per session, with a range of three to eight. Terry's mean baseline rate of correct pronunciations was 5.2, and Steve's baseline mean was 5.6. In arithmetic, Edwin's baseline rate was 48.0 problems per session, Terry's 25.9 problems per session, and Steve's 12.5 problems per 5-min session.

Principal praise. The principal-praise treatment program increased academic performances for all subjects in both word recognition and arithmetic. As can be seen in Figure 2, Edwin's mean rate of pronouncing words correctly during the principal-praise condition was 7.5. This represents a 2.2 word increase per session over his baseline rates. Edwin's variability remained quite high during this treatment phase, as his range was from four to 10. In 11 of the 20 experimental sessions, Edwin pronounced eight or more words correctly, while in the last four sessions of the eight-session baseline condition, Edwin pronounced four or fewer words correctly. Terry's mean rate of words pronounced correctly was 8.5 in this experimental phase. This represents a 3.3 word per session increase over his baseline rate. Steve increased his rate of correct pronunciations by 2.0 words per session, going from 5.6 in baseline to 7.6 under treatment conditions.

In the principal-praise phase of arithmetic, Edwin worked 67.3 problems per 5-min session on the average, an increase of 19.3 problems per session. Terry's scores increased from 25.9 to 38.7, and Steve went from a baseline rate of 12.5 to a treatment mean rate of 38.0 problems correct per session.

Fig. 2. Number of correct responses three fifth graders made in word-recognition and arithmetic tutoring. *Baseline*—before experimental procedures. *Principal Praise*—subjects were sent to the principal's office to receive praise contingent on attaining criterion.

EXPERIMENT III

The final experiment investigated how a school principal might affect the academic functioning of two entire classrooms.

Subjects

Two third-grade classes served as subjects. Class 1 had 36 pupils and Class 2 had 38 pupils. According to achievement and intelligent test scores and teacher and principal ratings, Class 1 was the most advanced third-grade class of the four in the building. Class 2 was the least advanced according to these criteria.

Procedures

Six arithmetic sheets with 100 problems per page were developed. Each problem on the page consisted of two, one- to two-digit numbers to add. A certain portion of the problems on each page involved carrying. The six sheets were placed in a set order of one to six before baseline. One sheet was presented each day, and after six days they were recycled so that on Day 7, sheet number one was readministered in a manner similar to the recycling procedure in Experiment II. There were 27 sessions in the experiment, which resulted in each sheet being administered five times.

The sheets were presented in both of the classrooms in the following manner. At approximately the same time each day during arithmetic class, the experimenter would enter the classroom and hand out a math paper to each student. The papers were face down and the students were instructed to write their names on the back of the sheet and wait for the signal to begin working on the problems. After all students had properly placed their names on the paper, the experimenter would set a 5-min timer and signal the class to begin. The students then turned their sheets over and worked as many problems as they could in the 5-min period. At the sound of the timer bell, the students turned their papers over again, and they were collected. The papers were scored by student graders on a daily basis. The individual scores the children made were posted on a chart in the room so that each child received feedback on the number of problems he had solved correctly. To assess the accuracy of the student graders' scoring pro-

cedures, reliability checks were made approximately every day. The experimenter would re-score one or two papers that were originally graded by the students. The number of agreements and disagreements between the experimenter and the student scores on those problems attempted were divided into the number of agreements and multiplied by 100. Of the 50 spot checks made in the 27 days of the experiment, agreement between the student graders and experimenter ranged from 90 to 100%, with a mean of 98%.

Experimental Phases

Baseline. During baseline, the papers were administered in both classrooms. Baseline procedures were carried out for 13 days in Classroom 1 and for 19 days in Classroom 2.

Principal praise. In Session 13, following the grading of the papers, a list was made of the students who improved their scores in Classroom 1 over the previous day. A list was also made of the five students making the highest scores. The principal entered Classroom 1 and asked those students on the first list to stand. After they were standing he announced to the class that those students had improved their addition scores. He praised them for their improvement and announced that he hoped when he returned the next time he could recognize everyone for improvement. He next asked the five students that scored highest on the math sheets to stand and he praised them for having the highest scores.

This procedure took less than 3 min and was repeated twice a week the next three weeks. The teacher and the experimenter made no comment, but continued administering the sheets as in the baseline conditions.

Baseline conditions remained in effect in the second class for six more sessions; then, the same experimental procedures were introduced there. The principal entered each room twice a week and spent 3 min or less recognizing those students whose scores were improved and the top five students of the previous day.

RESULTS

Baseline. The results of Experiment III can be seen in Figure 4. Each datum point represents the daily class mean for a particular sheet. As can be seen during baseline, Class 1 had a daily mean of 45 problems worked correctly per child. Class 2's daily mean of 25 problems worked correctly was considerably lower than Class 1. Individual baseline means for both classes are given in Table 1. The students are ranked according to mean improvement from baseline to treatment conditions.

Principal praise. During the principal-praise condition, both classes increased their daily mean scores considerably. During the 15 days Class 1 was receiving attention from the principal, the daily class mean increased from the base rate of 45 to a rate of 63. This represented a daily mean increase of 18 problems per child per 5-min period.

In Class 2, an overall mean increase from 25 to 34 represented a nine-problem daily mean improvement per 5-min period. Individual mean

Fig. 3. Daily mean number of correct addition problems worked in two third-grade classrooms. *Baseline*—before experimental conditions. *Principal Praise*—principal entered classroom twice weekly and praised improving students and highest performing students.

Table 1

The mean number of arithmetic problems correct for each third-grade subject in classrooms 1 and 2. Means presented are for the baseline and principal-praise phases and for the mean improvement of number of problems correct between those phases.

<i>Classroom 1</i>				<i>Classroom 2</i>			
<i>Subjects</i>	<i>Baseline Mean</i>	<i>Principal Praise Mean</i>	<i>Mean Improvement</i>	<i>Subjects</i>	<i>Baseline Mean</i>	<i>Principal Praise Mean</i>	<i>Mean Improvement</i>
S ₁	41	75	34	S ₁	35	62	27
S ₂	43	76	33	S ₂	63	88	25
S ₃	59	86	27	S ₃	35	56	21
S ₄	59	85	26	S ₄	55	74	19
S ₅	47	74	26	S ₅	35	54	19
S ₆	54	76	26	S ₆	5	23	18
S ₇	55	69	24	S ₇	37	53	16
S ₈	53	76	23	S ₈	53	68	15
S ₉	54	75	21	S ₉	43	58	15
S ₁₀	62	83	21	S ₁₀	33	46	13
S ₁₁	30	49	19	S ₁₁	14	27	13
S ₁₂	71	89	18	S ₁₂	21	33	12
S ₁₃	20	38	18	S ₁₃	16	28	12
S ₁₄	42	60	18	S ₁₄	41	53	12
S ₁₅	27	44	17	S ₁₅	37	49	12
S ₁₆	37	54	17	S ₁₆	18	29	11
S ₁₇	40	56	16	S ₁₇	25	36	11
S ₁₈	55	71	16	S ₁₈	16	26	10
S ₁₉	66	82	16	S ₁₉	24	34	10
S ₂₀	32	46	14	S ₂₀	30	39	9
S ₂₁	17	30	13	S ₂₁	39	46	7
S ₂₂	76	89	13	S ₂₂	19	26	7
S ₂₃	18	30	12	S ₂₃	25	31	6
S ₂₄	77	88	11	S ₂₄	3	8	5
S ₂₅	60	70	10	S ₂₅	7	12	5
S ₂₆	47	57	10	S ₂₆	22	27	5
S ₂₇	23	33	10	S ₂₇	40	45	5
S ₂₈	33	43	10	S ₂₈	6	10	4
S ₂₉	46	55	9	S ₂₉	26	29	3
S ₃₀	23	29	6	S ₃₀	2	2	0
S ₃₁	21	27	6	S ₃₁	33	33	0
S ₃₂	57	63	6	S ₃₂	14	13	- 1
S ₃₃	88	91	3	S ₃₃	14	13	- 1
S ₃₄	71	73	2	S ₃₄	29	26	- 1
S ₃₅	4	0.3	- 4	S ₃₅	3	1	- 2
S ₃₆	21	8	-13	S ₃₆	7	4	- 3
				S ₃₇	8	0	- 8
				S ₃₈	14	0	-14

increases across experimental conditions can be seen in Table 1. Forty seven of the 74 students increased their daily mean rates by 10 or more problems, 12 increased their daily means from five to nine problems, and 15 students of the 74 increased their daily mean rates by four or fewer problems.

DISCUSSION

A multiple baseline design yielded verifying evidence in Experiment 1 that contingent daily attention delivered by the principal to three subjects resulted in increases in their school attendance rates. During the subjects' baseline periods,

they were attending school approximately 50% of the time, while during the daily principal-attention phases they were in school 80% of the time.

Although daily principal attention resulted in more acceptable rates of school attendance, intermittent attention from the principal had less effect. This was discouraging due to the fact that the response cost to the principal for implementing the daily treatment program was prohibitive. Apparently in these three cases, daily consequences for attendance were a necessity.

As a result of Experiment I and previous studies (Brown *et al.*, 1972; Copeland *et al.*, 1972), it seems clear that a number of techniques are available to school principals for use in the treatment of chronic school absenteeism. In cases where one technique is not effective, as in the intermittent phase of the present study, perhaps a combination of various techniques would bring about results. For instance, had the principal called and praised the subjects' parents intermittently in this experiment for their children's presence in school, along with praising the children at school, perhaps attendance rates would have been maintained during the intermittent phases. Also, other school personnel could become involved in following attendance with various rewards in addition to those provided by the principal.

Generally, chronically absent inner-city children receive attention only for their nonattendance, rather than for their presence at school. In fact, their presence at school may generally be followed with scolding and threats regarding absenteeism. The data collected in this experiment and in previous studies have yielded promising evidence that techniques exist which, if implemented, result in higher attendance rates for children with histories of frequent absenteeism.

Experiment II indicated that principal attention delivered contingent on increased academic production was an effective reinforcer for the three subjects. The type of attention non-

productive students generally receive from principals often involves punishment, *i.e.*, techniques that are intended to decrease nonproductivity. The rationale behind this approach is that perhaps students will avoid punishing contacts with the principal by doing their work. Another type of attention nonproducers receive from principals involves positive reinforcement in the form of trips to the office contingent on nonproductivity. In these cases, the principal attempts to establish an understanding relationship with students to find out exactly why they are nonproductive. In both instances, nonproductivity is given attention, while productivity is ignored. In the present experiment, productivity was given attention, with the result that productivity increased.

The control procedures of the experiment prevented the classroom teacher from becoming involved in the treatment so that the effects of the principal contingency could be isolated. In actual practice, ideally the classroom teacher would also be delivering positive consequences for academic production.

The level of difficulty of the curriculum materials was kept consistent in Experiment II so that changes in academic functioning could be attributed to the treatment procedures and not to changes in curriculum. The data provided evidence that increases in academic functioning were not due to a practice effect or to the acquisition of new skills. Those students that remained in baseline conditions for longer periods of time than other subjects did not appreciably increase their academic rate until the principal contingency was implemented.

The results of Experiment III yielded convincing evidence that the school principal affected the academic productivity of a majority of the students in the two third-grade classrooms. A multiple baseline design revealed that the students did not do appreciably better on the arithmetic sheets, even though taking them on a repeating basis, until the principal-treatment program was implemented. It is apparent from the data that Classroom 1 responded much bet-

ter to the treatment than did Classroom 2. Any number of explanations could be presented to explain the differences, such as capacity, peer influence, classroom atmosphere, *etc.* However, none of them would be verifiable within the framework of the present design.

It is not clear what aspect of the procedure produced results. Both improving students and the best students were recognized by the principal. It was assumed that this approach would allow the low-achieving students an opportunity to receive attention for improvement and also ensure that the higher-achieving pupils would also receive recognition.

The treatment in Experiment III involved little response cost on the principal's part. He spent six or fewer minutes a week in each classroom. This, of course, is an important consideration when devising procedures for administrators to use. This technique should be readily adaptable to all classrooms. Teachers could very easily give a principal a list of names of those students who had done better in an academic area and of the top performing students. This technique would not have to be applied to groups only, but could be adapted for use with individuals. (Of course, one of its appeals as a group procedure is its economy in terms of results *versus* principal time.)

As in Experiments I and II, the effects of the principal's procedures were isolated from teacher-delivered consequences. This classroom procedure would in all probability be more powerful if the teacher joined the principal in delivering positive consequences for academic improvement.

The three experiments considered together indicate that a number of techniques are available to school principals to use in their professional interactions with children. In this study, a principal worked individually with children who were not attending school at an acceptable level and individually with children not functioning well academically. He also worked on a group basis with two entire classrooms.

Each experiment used treatment techniques naturally available to school principals and left the measurement procedures to the pupil's teacher or tutor. This is a significant point. It would be difficult for most principals to carry out long, time-consuming programs with individual children or classrooms. If procedures are devised, however, that involve measurement techniques already in effect (*i.e.*, grading papers, taking roll, *etc.*) in the classroom, the principal may quickly deliver appropriate consequences. Also, if the measurement procedures used by teachers to obtain information on children for the principal are those already in use in the classroom, unusual additional responses are not required by the teachers.

In conclusion, the three experiments were conducted in an inner-city school that had an enrollment well over the intended capacity of the building. It is assumed that since the techniques investigated under these less-than-ideal conditions proved effective, they would perhaps be effective in a number of other elementary schools. Hopefully, further research by other investigators will verify this assumption.

REFERENCES

- Brown, R. E., Copeland, R. E., and Hall, R. V. The school principal as a behavior modifier. *Journal of Educational Research*, 1972, **66**, 175-180.
- Copeland, R. E., Brown, R. E., Axelrod, S., and Hall, R. V. Effect of a school principal praising parents for student attendance. *Educational Technology*, 1972, **12**, 56-59.
- Daw, R. W. and Gage, N. L. Effects of feedback from teachers to principals. *Journal of Educational Psychology*, 1967, **58**, 181-190.
- Eaves, R. W. Elementary school principalship since 1950, some observations. *National Elementary Principal*, 1969, **48**, 2-4.
- Snyder, F. Supervisory roles of elementary principals. *Contemporary Education*, 1968, **39**, 274-275.
- Stoop, E. and Johnson, R. *Elementary school administration*. New York: McGraw Hill Book Company, 1967.

Received 3 January 1973.

(Revision requested 9 April 1973.)

(Final acceptance 27 December 1973.)