



12-1979

The Effects of Two-Day vs. Seven-Day Prompts on Attendance at a Preschool Screening

Susan Simonds Savage

Follow this and additional works at: https://scholarworks.wmich.edu/masters_theses



Part of the Early Childhood Education Commons

Recommended Citation

Savage, Susan Simonds, "The Effects of Two-Day vs. Seven-Day Prompts on Attendance at a Preschool Screening" (1979). *Master's Theses*. 2060.

https://scholarworks.wmich.edu/masters_theses/2060

This Masters Thesis-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Master's Theses by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.



THE EFFECTS OF
TWO-DAY VS. SEVEN-DAY PROMPTS
ON ATTENDANCE AT A PRESCHOOL SCREENING

by

Susan Simonds Savage

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

Western Michigan University
Kalamazoo, Michigan
December 1979

ACKNOWLEDGEMENTS

I wish to express my sincere appreciation to Dr. Howard E. Farris for his flexibility and patience in allowing me to complete this thesis from a distance of 1000 miles, and to Doctors Cheryl Poche and Galen Alessi for their participation as thesis committee members. I also wish to thank Ms. Ardis Haugen for her volunteer work in making the necessary telephone calls, and Dr. Phil Rice for his suggestions on data analysis. Mr. Alan K. Swedburg and the Moorhead Public Schools are acknowledged for allowing me to conduct this study while under their employ. Finally, the constructive criticism and constant encouragement I received from Ms. Donna Hoffelt, Dr. Bonnie Brown, and my husband, Joseph Savage, helped to make the completion of this thesis a reality.

Susan Simonds Savage

INFORMATION TO USERS

This was produced from a copy of a document sent to us for microfilming. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help you understand markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure you of complete continuity.
2. When an image on the film is obliterated with a round black mark it is an indication that the film inspector noticed either blurred copy because of movement during exposure, or duplicate copy. Unless we meant to delete copyrighted materials that should not have been filmed, you will find a good image of the page in the adjacent frame.
3. When a map, drawing or chart, etc., is part of the material being photographed the photographer has followed a definite method in "sectioning" the material. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.
4. For any illustrations that cannot be reproduced satisfactorily by xerography, photographic prints can be purchased at additional cost and tipped into your xerographic copy. Requests can be made to our Dissertations Customer Services Department.
5. Some pages in any document may have indistinct print. In all cases we have filmed the best available copy.

University
Microfilms
International

300 N. ZEEB ROAD, ANN ARBOR, MI 48106
18 BEDFORD ROW, LONDON WC1R 4EJ, ENGLAND

1314286

SAVAGE, SUSAN SIMONDS
THE EFFECTS OF TWO-DAY VS. SEVEN-DAY PROMPTS
ON ATTENDANCE AT A PRESCHOOL SCREENING.

WESTERN MICHIGAN UNIVERSITY, M.A., 1979

University
Microfilms
International

300 N. ZEEB ROAD, ANN ARBOR, MI 48106

TABLE OF CONTENTS

CHAPTER		PAGE
I	INTRODUCTION	1
II	METHOD	6
	Subjects	6
	Response Definitions	6
	Procedure.	7
III	RESULTS AND DISCUSSION	11
	REFERENCES	23

CHAPTER I
INTRODUCTION

With the advent of Public Law 94-142, all school districts in the United States are required to identify and provide habilitative services to young handicapped children beginning at age three. For many school districts, the primary method of initially identifying such youngsters is via large scale screenings, including developmental and health components. Since in most states participation in these screenings is optional, it is the task of the school district to encourage participation by all target parents and children. Failure of parents to bring their children to the screening increases the likelihood that a handicapped child may not be identified and therefore may not receive appropriate services. It additionally results in wasted professional and paraprofessional time, contributing to decreased cost efficiency of the screening program. It is to the school district's advantage to encourage optimum participation by all target parents and children.

Literature reviewed does not reflect any systematic attempts to increase kept appointments at preschool screenings. Shmarak (1971) reported a comprehensive plan to decrease broken appointment rates at a dental clinic for children and adolescent youth. His procedure consisted of asking the patient to specify the most convenient time for an appointment, providing the patient with a colored appointment slip, telephoning the day before to prompt the patient to attend

the appointment or, if the patient had no telephone, sending a reminder postcard (prompt) three days prior to the appointment, following through via phone calls on "no show" patients ten minutes after their appointment had passed, stressing to patients the importance of dental health, and providing an atmosphere of personal warmth and interest. Although Shmarak's entire procedure was effective in reducing broken appointment rates from 28 percent to 7.5 percent, the individual effects of telephone or postcard prompts alone was unclear.

Other research reviewed has investigated the individual effects of telephone and/or postcard prompts. At a community mental-health center, Turner and Vernon (1976) found that a standardized telephone message (prompt) delivered one to three days prior to the client's initial appointment was effective in decreasing broken appointment rates. They additionally reported this procedure as highly cost effective. Schroeder (1973) studied the effects of prompting patient attendance at a medical clinic through the use of postcards sent five days before the appointment, telephone calls made by nurses one day before the appointment, and telephone calls made by physicians one day before the appointment. All three of these groups had significantly lower rates of broken appointments than a control group. No statistical analyses of the differential effects of the three treatments were reported. The broken appointment rates were 24.6 percent for the control group, 19.5 percent for the nurse telephoned group, 17.6 percent for the physician telephoned group, and 13.7 percent for the postcard prompted group.

This author points out, additionally, that since over 40 percent of his patients could not be reached by telephone, mailed prompts were the more efficacious treatment. Nazarian *et. al.* (1974), at an outpatient medical center, found that a postcard prompt mailed one week before the patient's appointment significantly increased the rate of kept appointments. He also noted, however, that when the interval of time between scheduling the appointment and the actual day of the appointment was from 12 to 28 days, there were no significant differences between the groups receiving a postcard prompt and those not receiving a postcard prompt. However, when this interval was from 29 to 35 days, the rate of kept appointments without the postcard prompt dropped such that the difference between the prompted and control groups was significant.

Again at an outpatient health center, Gates and Colborn (1976), using patients scheduled for appointments three weeks in advance, compared the effects of telephone prompts one to two days before the appointment, a mailed letter prompt sent three to four days before the appointment, and no prompt. Their results showed a significant effect in decreasing broken appointments by both the telephone call and letter procedure. No significant differences were found between the letter group (broken appointment rate 10 percent) and the telephone prompted group (broken appointment rate 9 percent). Shepard and Moseley (1976) reported similar findings in a study conducted at a pediatric outpatient department. Appointments were made from three weeks to eight weeks in advance. Patients with telephones were prompted two working days prior to

the appointment. For those patients without telephones, postcard prompts were mailed from four to seven days prior to the appointment. The results showed that both the telephone and postcard prompted groups had a significantly lower rate of broken appointments than the control group. Again, no significant difference in broken appointment rates was found between the telephone prompted group and the postcard prompted group. The experimenters found mailed postcard prompts the more cost effective procedure in this study.

Available research at this time indicates that telephone and mailed postcard prompts are equally effective in reducing broken appointment rates. Turner (1976) found telephone prompts more cost effective, whereas Schroeder (1973), Nazarian (1974) and Shepard and Moseley (1976) found postcard prompts more cost effective. The effect on broken appointment rates of different lengths of time between receipt of prompt and day of the appointment has not been systematically investigated. Assuming one day mail delivery, postcard or mailed prompts were received from two days to six days prior to the scheduled appointments in the reported studies. None of these studies have systematically attempted to determine if one length of time is better than another in terms of lowering broken appointment rates.

The present study investigated the effects of mailed postcard prompts on the probability of appointment keeping by parents and their children at a preschool screening.

The effect of the interval between parent receipt of prompt and the actual day of the appointment was also studied. Finally, the cost of a postcard prompting system was compared to the estimated cost of a telephone prompting procedure.

CHAPTER II

METHOD

Subjects

Subjects were 239 sets of parents of target children aged 3.5 years to 4.5 years at the time of the screening, whose birthdays fell between September 2, 1974 and September 1, 1975. Only those children residing within the Moorhead, Minnesota city limits were included in the sample, to partially control for the effect of distance traveled to the screening.

Response Definitions

A kept appointment was defined as the target child present at the screening site on the correct day, within 30 minutes before or after the scheduled appointment time. A missed appointment was defined as the target child not present at the screening site on the correct day, within 30 minutes before or after the scheduled appointment time. Parents who called to change their child's appointment time were excluded from the data, since the telephone call was a confounding variable. Parents who called to cancel their child's appointment (because they chose not to attend the screening, had moved out of the school district and were no longer eligible, etc.) were also excluded from the data.

The date the parent received the postcard prompt was defined as the day after the prompt was mailed. Postal service within the city of Moorhead guaranteed one-day mail delivery.

Procedure

School census data were obtained, listing all children and their parents alphabetically, by school attendance area. Children residing outside the city limits were excluded from the sample. The remaining children were then sequentially assigned a date and time to attend the screening. Children's appointments were scheduled at half hour intervals from 8:30 a.m. to 3:00 p.m., on weekdays, for two consecutive weeks (the last week in March and the first week in April, 1979). Children were then randomly assigned to one of three groups: those whose parents received a postcard prompt two days before the appointment day, those whose parents received a postcard prompt seven days before the appointment day, and those whose parents received no postcard prompt. Since no mail was delivered on Sunday, all children in the two-day prompt group whose appointments were on Tuesday were changed to Wednesday, and some seven-day prompt group children were changed from Wednesday to Tuesday, to keep the number of children screened per day equal. This in no way affected the random assignment of children to groups; the only variable affected was the child's actual appointment day. Assignment to one of the three groups remained constant, despite the change of appointment day. Postcard prompts consisted of a standard message reminding parents of their child's day, date and time of appointment, and the location of the preschool screening. (See Figure 1.)

In addition to various community advertisements (posters, radio announcements) urging parents to bring their children to the

This is to remind you that _____
has an appointment on _____
for the Moorhead Schools' preschool
screening. Please bring your child to
the First Congregational Church, 406
South 8th Street, Moorhead. We are
looking forward to seeing you there!

Figure 1

Facsimile of Postcard Sent to Experimental Groups

screening, a further treatment received by all parents in all three groups was a mailed packet of information including a letter inviting them to the screening and stating their child's appointment date and time. Also included in the packet were a comprehensive four-page health history and nutritional record, and a consent for screening form, both of which the parent was to complete and bring with them the day of the screening. A brochure describing the screening was included, as well as a page of ten activities the parent could do with their child, to illustrate to their youngster some of the screening activities. Finally, a release of information form and a pre-addressed, stamped envelope were included in the packet. State law in Minnesota prohibited rescreening particular health components if the child had received those components from his/her physician within twelve months prior to the screening. The release form requested all parents to complete the form and check whether or not their child had previously had a physical examination, blood tests, urine tests or other laboratory work, specify their child's physician, sign and date the form and mail it back to the school immediately. All parents were informed that the forms were necessary to appropriately plan for their child's screening, and that the forms had to be on file for each child prior to his/her screening. Following the school's receipt of the release form, communication with the child's doctor was then carried out, and the parent had no further responsibilities other than to bring their child to the screening. All packets were mailed 24 days prior to the start of the screening.

A group of 20 children was randomly chosen from the population not sampled. To the parents of these children, telephone prompts were provided, to estimate only the amount of time and the cost involved in using a telephone prompting procedure. The parent was provided with the same standard message as was printed on the postcard prompt. The student volunteer making the calls recorded the time she started making telephone calls, the time she stopped, the number of calls she made, and the number of actual contacts with parents she made. The volunteer was instructed to stop calls after four unsuccessful attempts. The 20 telephone calls were made over a period of three days. The purpose of this telephone probe was not to examine the likelihood of attendance as a function of prompting, but rather to estimate the cost of a telephone prompting procedure. Therefore, to avoid decreasing the size of the experimental groups, parents to be prompted via the telephone were chosen who lived within the school district, but outside the city limits.

In order to estimate the percent of parents contacted by postcard prompts, an evaluation was included as part of the screening. One of the questions on the evaluation asked parent attendees to respond if they had received a postcard. Since parents were required to bring several completed forms with them to the screening, they were not required to bring the postcard also. This may have been an undue imposition; it was possible that child attendance at the screening might have been jeopardized if the parent lost or misplaced the postcard. Therefore, verbal report was accepted as confirmation of receipt of the prompt.

CHAPTER III
RESULTS AND DISCUSSION

Data from the evaluations at the screening site indicated that postcards were received by 90 percent of the parents to whom they had been sent. The total number of parents reporting receipt was divided by the total number of postcards sent and then multiplied by 100. This yielded an estimate of the percent of parents in the experimental groups contacted by postcard. Variables not controlled at the site resulted in a number of parents either not completing the evaluations or not turning the evaluations in to the appropriate individual. Had this not occurred, the figure may have been higher than 90 percent.

Table 1 presents the actual data collected from the screening. The final number of appointments included in the data was 239. Seven-day prompts resulted in 10.8 percent more kept appointments than the no prompt (control) group. Two-day prompts resulted in 15.6 percent more kept appointments than the control group. Two-day prompts resulted in 4.8 percent more kept appointments than the seven-day prompted group.

Table 2 presents the results of the Bar Z (\bar{z}) test of significance of differences between proportions (Guilford, 1965). A one-tailed test was conducted for the purpose of independently comparing the proportion of kept appointments in the two treatment groups (two-day and seven-day prompt) with the control group. In

Table 1
 Actual Frequencies of Kept and Missed Appointments
 by Group

Group	N	Number Kept Appointments	Number Missed Appointments	Percent Kept Appointments
Control	84	48	36	57.1
Two-Day Prompt	77	56	21	72.7
Seven-Day Prompt	78	53	25	67.9

Table 2
Results of Bar Z (\bar{z}) Test of Significance
of Differences Between Proportions

Comparison	Type of Test	$\bar{z} = p < .05$	Actual \bar{z}
Control vs. 7-Day	One-Tailed	1.65	1.44
Control vs. 2-Day	One-Tailed	1.65	2.12
7-Day vs. 2-Day	Two-Tailed	1.96	.74

this case the concern was with rejecting the null hypotheses ($H_{01}:p_2 = p_1$; $H_{02}:p_3 = p_1$) with the alternate hypotheses $H_{a1}:p_2 > p_1$ or $H_{a2}:p_3 > p_1$ (where p_1 = the probability of attendance without additional prompts, p_2 = the probability of attendance for the group receiving two-day prompts, and p_3 = the probability of attendance for the group receiving seven-day prompts). A two-tailed test was conducted to compare the percent of kept appointments for the two-day prompted group with the seven-day prompted group. In this instance the concern was with rejecting the null ($H_{03}:p_2 = p_3$) with the hypothesis $H_{a3}:p_2 \neq p_3$.

Results of the tests showed that only the two-day prompts significantly increased the probability of kept appointments at the screening ($p < .05$). Although seven-day prompts resulted in a greater number of kept appointments over the control group, this difference was not significant. Additionally, the difference in attendance between the two-day and seven-day prompted groups was not significant.

The improved attendance rate at this preschool screening by the two-day postcard prompted group is consistent with the findings of Gates and Colborn (1976). These experimenters sent personalized letters three days before appointments at a neighborhood health center. Assuming one-day mail delivery, clients received the mailed prompt two days in advance of the appointment. Gates and Colborn found, as did the present study, that two-day mailed prompts resulted in a significant improvement in rate of attendance.

The fact that seven-day prompts in the present study did not significantly improve the rate of attendance at the screening is interesting in light of other research. Assuming one-day mail delivery in all of the experiments, Nazarian's (1974) clients received a postcard prompt six days in advance of their appointment, with a significant improvement in rate of attendance reported for a pediatric health center. Shepard and Moseley's (1976) clients at a medical center received postcard prompts three to six days before their appointments, with a resulting significant improvement in rate of attendance. Schroeder (1973), also at a medical center, mailed postcards that were received five days prior to the clients' appointments. A significant difference in attendance was found between the prompted group and the group receiving no prompts.

The six-day interval between receipt of prompt and day of appointment employed in the Nazarian (1974) study most closely approximated the seven-day interval employed in this study. Due to the nature of the populations, there were differences in the method of establishing the appointment and in the clients' expectations regarding the appointment. Nazarian's appointments were made by the child's parents at the pediatric clinic; at that time the parent received a standard appointment slip noting the time and date of the appointment. In the present study, parents were assigned an appointment via a mailed letter 24 days prior to the start of the screening; parents had no opportunity to choose their child's appointment date or time. Because parents made their own appointments at the clinic in Nazarian's study, if they had questions

regarding the appointment they could be answered by the receptionist or nurse at that time. In the present study parents received a letter describing the screening, but had no opportunity to ask questions about the procedures at the screening.

Nazarian (1974) found that six-day postcard prompts were effective in improving attendance. The present study found that seven-day postcard prompts were not effective in improving attendance. It is conceivable that there is some interval of time, between receipt of prompt and day of appointment, after which prompts are no longer effective in increasing the probability of attendance. The data from the Nazarian (1974) study and the present research indicate that this interval begins at seven days. Further research is needed to determine whether this conclusion can be generalized to other populations.

Tables 3 and 4 provide data on the cost of a postcard prompting system vs. a telephone prompting system. As can be seen from Table 3, the average telephone call required 2.26 minutes, however, an average of 2.21 calls were required for one contact. This resulted in an average of 4.9 minutes per each telephone contact. Table 4 illustrates the various costs involved in both the postcard and telephone prompting systems. Of the telephone prompted group, 70 percent were successfully contacted, compared to the 90 percent contacted by postcards. Additionally, the total cost per postcard prompt was \$.20, whereas the total cost for a successful telephone prompt was \$.43. The telephone prompting procedure used in this study cost 215 percent more than the postcard procedure, with

Table 3

Actual Data From Telephone Prompted Sample

N	Number Calls Made	Number Contacts Made	Number Minutes Spent Calling	Number Calls/Contact	Number Mins./Call	Number Mins./Contact
20	31	14	70	2.21	2.26	4.9

Table 4

Actual Cost of Postcard Prompt vs. Estimated
Cost of Telephone Prompt

Type of Prompt	Percent Contacted	Cost-Related Items	Cost Per Prompt	Total Cost Per Prompt
Postcard	90	Postcard and Postage	\$.10	\$.20
		Printing Message on Card	\$.0283	
		One Minute Secretarial Time @ \$8500 Annually	\$.071	
Telephone	70	4.9 Minutes Secretarial Time @ \$8500 Annually	\$.35	\$.43
		4.9 Minutes Telephone Time @ \$85 Monthly	\$.086	

20 percent less success. It is to be noted that this study employed a student volunteer to make the telephone calls. Most agencies would not have such a person available, and would rely on secretarial help to complete the calls. Hence, the estimated cost was figured using secretarial time.

The greater efficiency of postcard prompts over telephone calls is consistent with the findings of other researchers. Gates and Colborn (1976) excluded clients without telephones, but nonetheless found that clients were contacted less often by phone (80 percent) than by mail (97 percent). Schroeder (1973) found that 58 percent of the clients to be prompted by phone could not be reached. Shepard and Moseley (1976) reported that 42 percent of their clients to be prompted by phone could not be reached. Thirty percent of the sample to receive telephone prompts in the present study could not be reached. Factors contributing to failure to make contact with clients via the telephone are disconnected numbers, individuals who have no phone at all, and individuals whose working hours allow them to be home only in the evenings, typically after agencies have completed their work day and consequently their telephone calling.

The lower cost of postcard prompts over telephone prompts found in this study is also consistent with the findings of two other researchers. Schroeder (1973) found a cost savings with postcards since they required much less clinic personnel time. Shepard and Moseley (1976) found postcards to be 50 percent less expensive and more convenient than telephone prompts.

The results of Turner and Vernon's cost-effectiveness study (1976) conflict with the results of this and other studies (Schroeder, 1973; Shepard and Moseley, 1976). Turner and Vernon reported that telephone prompting was less expensive than postcard prompting, although they provided no data on the actual cost of postcard prompts.

There are several factors which may be related to this conflict. Turner and Vernon telephoned only those clients scheduled for intake (initial) appointments at a mental health center. From the data provided, this number was approximately four clients per day. They reported the cost of their procedure using a receptionist to make the calls, however went on to point out that the volunteers used at their center could easily be trained to make the calls, thus resulting in a further cost savings.

Turner and Vernon reported that each telephone call required about 30 seconds to complete. They were unable to report the success/failure rate of telephone calls, due to misplacement of a data log. The present study found that 2.21 calls per client contact were required, and that each telephone call required about 2.26 minutes to complete. The discrepancy in amount of time required per call between Turner and Vernon's study and the present study can be accounted for by the difference in the appointment making procedure. Turner and Vernon's clients contacted the center (either by telephone or in person) to make their initial appointment. At this time, if clients had questions regarding the intake procedure these questions could be answered, and would

be less likely to arise during the prompt telephone call. In the present study, clients had no such opportunity, since appointments were assigned by mail. Consequently, more information from the person making the telephone calls may have been required than the simple reminder message listing client's name, day, time and location of the screening.

The feasibility of a telephone prompting procedure is increased when a small number of calls per day is required. In the present study, approximately 40 clients per day were scheduled for appointments. At a rate of two calls per contact, this would have resulted in 80 telephone calls per day. Schroeder (1973) reported data on approximately 28 appointments per day. Turner and Vernon (1976) reported data on approximately four appointments per day. A telephone prompting procedure was more feasible when a small number of calls per day were required. The majority of evidence, however, indicated that a postcard prompting procedure was more cost-effective than a telephone prompting procedure (Gates and Colborn, 1976; Schroeder, 1973; Shepard and Moseley, 1976).

In summary, the effectiveness of two-day postcard prompts on attendance at a preschool screening was consistent with other findings (Gates and Colburn, 1976). The non-significance of effects of seven-day postcard prompts on attendance at a preschool screening was reported. These results, taken in conjunction with the effectiveness of six-day postcard prompts reported by Nazarian (1974) led to the conclusion that the interval of time, between receipt of prompt and day of appointment, at which prompts

become ineffective is seven days. Further research is needed to determine whether these results are applicable to other settings. The issue is a salient one, since an ineffective prompt is less cost-effective than no prompt at all. A postcard prompting procedure in the present study was found to be less costly and more convenient than a telephone prompting procedure. These results were consistent with other findings (Gates and Colborn, 1976; Schroeder, 1973; Shepard and Moseley, 1976). The findings were inconsistent with Turner and Vernon (1976). It was concluded that telephone prompts may be more feasible when a small number of calls per day is required. For most agencies dealing with a large number of appointments per day, however, postcard prompts are more convenient and cost-effective.

REFERENCES

- Gates, Susan J. and Colborn, D. Kathleen. "Lowering appointment failures in a neighborhood health center." Medical Care, 1976, v. 14, 263-267.
- Guilford, J. P. Fundamental Statistics in Psychology and Education (4th ed.). New York: McGraw-Hill Book Co., 1965.
- Nazarian, L. F., Mechaber, J., Charney, E., and Coulter, M. P. "Effect of a mailed appointment reminder on appointment keeping." Pediatrics, 1974, v. 53, 349-352.
- Schroeder, Steven A. "Lowering broken appointment rates at a medical clinic." Medical Care, 1973, v. 11, 75-78.
- Shepard, Donald and Moseley, Thomas. "Mailed versus telephoned appointment reminders to reduce broken appointments in a hospital outpatient department." Medical Care, 1976, v. 14, 268-273.
- Shmarak, Kenneth. "Reduce your broken appointment rate: How one children and youth project reduced its broken appointment rate." American Journal of Public Health, 1971, v. 61, 2401-2404.
- Turner, A. Jack and Vernon, James C. "Prompts to increase attendance in a community mental-health center." Journal of Applied Behavior Analysis, 1976, v. 9, 141-145.