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AUTHOR Bogatz, Gerry Ann; Ball, Samuel
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ABSTRACT

As a followup to a previous evaluation, a study to determine the effect of Sesame Street viewing on school readiness was conducted using a group of 99 three-, four-, and five-year-olds from a low income neighborhood in Los Angeles. Subjects were randomly assigned to groups which were either encouraged to watch the program or to maintain their normal viewing habits. Pre- and posttests of the subjects showed that after one year the subjects encouraged to watch Sesame Street showed slightly accelerated achievement, but not at a significant level. A parent questionnaire and interview which accompanied the viewing test revealed that the difference in viewing time between the two groups was less than in previous years. Teacher evaluation of the students showed that the Sesame Street viewers performed well on school readiness factors. (EMH)

THE IMPACT OF SESAME STREET ON CHILDREN'S FIRST SCHOOL EXPERIENCES

by

Gerry Ann Bogatz

and

Samuel Ball

A report to the Children's Television Workshop

Educational Testing Service
Princeton, New Jersey
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Richard Harsh, Regional Representative, agreed to take on the field work for this research despite his full schedule and our request coming at a late date.

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Field staff collaborators were: Ms. Pearl Clay
Ms. Shirley Stevenson
Mr. Fred J. St. Cyr
Mr. W. Nelson Talbert

Their work was well carried out and, like the Canadian Mounted Police, they always got their subject.

We especially thank the administrators and staff of the Los Angeles and Compton school systems who gave us such excellent cooperation that we started to doubt the universality of the existence of red tape in large school systems.

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Gerry Ann Bogatz
Principal Investigator

Samuel Ball
Project Director

1. Introduction

In the summer of 1968, Children's Television Workshop (CTW) began planning the show that was to be an innovation in educational television--Sesame Street. In November, 1969, and for the next six months, the first series of the show was telecast. Educational Testing Service (ETS) undertook the task of evaluating that first series.

The report on the evaluation of the first year of Sesame Street stated that the show had achieved many of its goals. It also stated that, "basically the large gains occurred in those areas that were directly taught."[1] What was of unanswered concern then was what the effects of Sesame Street would be on viewers when they subsequently had their first school experiences. That is, would there be a type of transfer effect from the show such that viewers, having gained from this viewing experience, would have enhanced performances in their first year in school. The second year evaluation effort attempted to answer this question. Children who were at home in the first year of Sesame Street were followed into school (nursery school, Head Start, kindergarten, or first grade) in the second year. The following description of this follow-up is taken from our second year report:[2]

[1] Ball, S. and Bogatz, G. A. The First Year of Sesame Street: An Evaluation: Educational Testing Service, Princeton, New Jersey, October 1970, p366.

[2] Bogatz, G. A. and Ball, S. The Second Year of Sesame Street: A Continuing Evaluation. Volume 1, Educational Testing Service, Princeton, New Jersey, November 1971, pp175-176.

"The procedure used was to have teachers rank all the children in their class on a number of criteria. The rankings of the few children who were subjects of this study were then abstracted. The teachers did not know which children were subjects. The ranking procedure was used in the autumn of 1970 when the children had been in school about a month and again in the spring of 1971 when the children had been in school about eight months. The autumn ranking of 112 children indicated that children who viewed Sesame Street most during its first year (including the summer reruns) were most highly regarded by their teachers on seven criteria. On two of the criteria, attitude to school and peer relationships, differences among the rankings of children who had watched Sesame Street in varying amounts were significant. The one where differences by amount of viewing were least apparent was physical coordination, an area hardly susceptible to the influence of television.

Note that while the general relationship is clear that the more children viewed, the higher they were ranked, no causality can be inferred. That is, the frequent viewers also were somewhat younger and had somewhat higher attainments at the outset of the study (in the pretest of the first year). Therefore, while frequent viewers were more highly ranked, the higher rankings could have been a function of factors other than the frequent viewing. However, even if a positive causal influence cannot be drawn, it is reasonable from these data to deny a criticism of the show that viewing Sesame Street would have the effect of "turning off" children when they arrived in school. The argument was at least in part based on the idea that school would be dull in comparison with the sensory impact of Sesame Street. The results of the fall teacher rankings do not bear out this criticism. Rather it would seem that if children arrive at school with an adequate background of basic information and skills, they will find school more interesting and be judged more highly by teachers.

The same procedure was carried out in the spring of 1971. The results of these spring rankings were not significant, perhaps in part because the number of children ranked had fallen to 88. As well, however, infrequent viewers in the first year sometimes became frequent viewers in the second year of the show. Thus almost all children in the study had viewed the show at one time or another by the spring of 1971. In these circumstances, differences in rankings that might have been caused by Sesame Street could not be ascertained. The question of the effect of Sesame Street on children's adjustment to school is important. While the stated goals of the show do not extend to such ambitious realms, there remains the hope that since Sesame Street had significant impact on a sizable proportion of its goals, these effects would carry over into at least the early months of schooling. The results so far obtained suggest that this hope might be a reality though definitive research has not yet been carried out."

The report that follows describes a second follow-up study. This study was carried out in Los Angeles during the third year of Sesame Street. Again the goal was to assess the impact of earlier viewing at home on performance in the first year of school. The study was somewhat more extensive than the first follow-up study and it overcame a major problem that hindered a clear interpretation of that first follow-up study.

2. Subjects

Potential subjects for this study were children who were part of the Los Angeles sample of the second year ETS evaluation. They had the following characteristics:

None had viewed Sesame Street in its first year of telecasting.

All were at home (no formal schooling or day care) during the second year of Sesame Street.

All lived in low income neighborhoods in the Los Angeles area (for example, East Los Angeles, Compton).

They were randomly assigned to encouraged (viewing) or not encouraged (control) conditions at the beginning of the second year of Sesame Street at which point they were 3-, 4-, or 5-years-old.

They were pretested before the second year telecast of Sesame Street and posttested at the end of the second year.

They had gone onto some form of schooling during the third year of Sesame Street (1971-1972). This included preschool, kindergarten, and first grade classrooms.

Not all of the children who had these characteristics were included in this present study. Some children's families changed addresses and could not be found. A few children went to private or parochial

schools which were unable to provide cooperation in the limited time at our disposal. The results of this study are based on the follow-up of 99 Los Angeles children for whom complete pretest and posttest data were available in Year II of Sesame Street, who had gone on to school in Year III, and for whom all requested data were obtained concerning this first year in school.

3. Measures

The measures reported in this study consist first of the Sesame Street battery developed by ETS to assess the goals of the show. This battery had been administered to all the subjects of this study at pretest (October 1970) and at posttest (May 1971). A parent questionnaire was also administered at those times to obtain background information on the children. A measure was also used to assess the amount of viewing of the subjects in the second year of Sesame Street (having established that none had viewed during the first year). It was noted that in the second year all but a few of the encouraged viewed the show but less than one-third of the not-encouraged were viewers.

In order to assess the impact of viewing the show at home on the children's performance in school, two additional measures were used and administered after five months of school experience. One was the Cooperative Preschool Inventory (Caldwell). The Inventory was chosen because it is "a brief assessment and screening procedure designed for individual use with children in the age range of 3- to 6- years. It was developed to give a measure of achievement in areas regarded as necessary for success in school. Another goal was to

develop an instrument that was sensitive to experience and could thus be used to demonstrate changes associated with educational intervention."[3] In addition, the Inventory contained many items directly related to the goals of Sesame Street (body parts, geometric shapes) and others that were not (colors, copying).

The other measure was the rankings scale. A follow-up technique was needed that would obtain teacher rankings of the study children without singling those children out from their peers for special attention. With this in mind, and with the knowledge that teachers could not be asked to assess certain children and not others without somehow altering their subsequent treatment of both groups, a simple expedient was devised. Teachers of classes in which any of the Sesame Street follow-up subjects were enrolled were asked to rank all of the children in their classes. The task involved their rank-ordering all of their students according to each of the following dimensions: general readiness for school, verbal readiness, quantitative readiness, general intelligence, attitude toward school, relationships with peers, physical coordination, and cooperation.

In addition to these two measures, parents of all 99 children were interviewed and asked about their children's viewing of Sesame Street in order to provide evidence on the children's new or continued viewing of Sesame Street, a measure essential to a proper interpretation of the results. Analyses of these questions indicated that the encouraged children had continued to view the third season at a higher frequency than the not-encouraged, but that the differences in amount of viewing between the two groups was not as great as it had been in the first year of the study.

[3] Preschool Inventory Revised Edition-1970, Handbook, Cooperative Tests and Services, Educational Testing Service, Princeton, New Jersey, 1970, p4.

4. Results

Table 1 provides the results for the 47 encouraged to view and the 52 not-encouraged children on the ETS Sesame Street battery used during the year preceding their entry into school. It may be seen that, for these two groups of children, the pretest scores of the not-encouraged were somewhat higher than those of the encouraged, that the encouraged gained more, and that at posttest the encouraged had surpassed the not-encouraged.

Table 2 presents certain scores from the parent questionnaire on these same children. It may be seen that the not-encouraged children came from slightly less disadvantaged backgrounds, their parents being less economically disadvantaged and having on the average about 8 months more formal schooling.

The results of the two groups on the Cooperative Preschool Inventory administered in the spring of 1972 are:

	Encouraged (N=47)	Not-encouraged (N=52)
Mean	52.1	54.0
Standard Deviation	7.5	7.1

Thus, at first glance, it can be seen that after five months in school the two groups of children seem quite similar on this measure. Note too that the mean scores (52.1 and 54.0) represent percentiles on national norms of 76 and 82 respectively. These norms are based on 1531 Head Start children. They indicate a higher performance than might have been expected from their performance on tests administered before Sesame Street viewing. These scores also seem to reflect well on the encouraged children. They had begun, at pretest, at a

disadvantage to their controls and on the evidence of the parent questionnaires, they came from poorer homes. Therefore, since they had been randomly allocated to encouraged vs. not-encouraged in the first place, a multivariate analysis of covariance was performed as summarized in Table 3. Pretest total score on the Sesame Street battery and SES (socioeconomic status) index were covaried. Table 3 shows that only age came out as a significant factor, older children performing better on the Cooperative Preschool Inventory. The viewing (encouragement) factor was not significant.

Table 4 presents the mean teacher rankings converted to centiles for the encouraged and not-encouraged children. The not-encouraged children received slightly higher rankings than their encouraged counterparts; but subsequent analysis indicated no significant differences.

Table 5 provides results concerning subject viewing of Sesame Street. It may be noted that encouraged children increased their viewing of Sesame Street during the summer telecasts in comparison to the position a year earlier. Thus, although at the time of the follow-up testing the encouraged children had viewed more shows, viewed them more times per week, and viewed a larger proportion of each show, the not-encouraged children were also viewing to a relatively high degree.

5. Discussion

There are many factors operating to affect a child's performance in school or the teacher's view of that child. It had been noted that the viewing of Sesame Street had a positive effect on the performance

of children before school. The question was whether this would be reflected in improved performance later in school. The following diagram indicates the process being investigated (the hypothesized chain).

1. Child views Sesame Street. → 2. Child does better on tasks assessing Sesame Street goals. → 3. Child enters school and continues to view Sesame Street. → 4. Child does better on school tasks than non-viewing children and is viewed more positively by teacher.

The links between 1. and 2. in the chart have been confirmed on a number of occasions. The third link indicates the passage of time and the child's inexorable induction into the formal educational process. It also indicates the pervasiveness of Sesame Street in that about 74% of the encouraged children and about 58% of the not-encouraged children seem to have viewed it just before or during the first year in school. This compares with about 92% and 30% respectively during the second season of Sesame Street (note that none of either group had been viewers in the first year of the show).

Thus, although no significant differences were noted in their performance in their first year in school (the chain from 1 and 2 to 4 as diagrammed above), an interpretational problem arises. Encouraged children do not seem to perform better than not-encouraged children and they are not viewed more positively by their teachers. However, in explaining this result two factors should be noted. First, many factors

influence in-school performance, including the teacher, home experiences, and peer group pressures. While it would have been intriguing if encouragement and viewing of Sesame Street before school had significantly affected in-school performance, it is not surprising that this was not found. To have marked effects on in-school performance a large number of causal factors have usually to be worked on.

However, it is also interesting to note that the children performed very well on the Inventory used to assess their status in their first year in school. On national norms, when compared with similar children who had had Head Start experience, they fell in the top quarter. Since the majority of both encouraged and not-encouraged children had been Sesame Street viewers at some stage (either in Year II, the intervening summer, or in Year III of the show), then it is clear that differences between these two groups on the basis of differential amounts of viewing would be difficult to obtain. It is also reasonably clear that the show is not having deleterious effects upon children entering school for the first time.

In the complex situation, simple solutions are rare. Sesame Street, we have noted, has beneficial effects on preschool children. Whether these effects are translated into improved later school performance probably is still not clear. A major reason for this is that the show has great popularity and even when the show is telecast on UHF stations, the majority of preschool children viewed it at some time during its first three years.

TABLE 1

Pretest, Posttest, and Gain Scores for Encouraged and Not-encouraged Children

ubtest	Maximum Possible Score	Encouraged N = 47						Not-encouraged N = 52					
		Pretest		Posttest		Gain		Pretest		Posttest		Gain	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
ody Parts	10	6.4	3.4	8.4	2.1	1.9	3.2	8.0	2.9	9.1	1.5	1.1	3.1
of Body Parts	8	3.6	2.9	5.5	2.4	1.9	2.7	4.4	2.4	5.6	2.1	1.3	2.8
Total	18	10.0	5.8	13.9	4.1	3.8	5.2	12.4	4.6	14.8	3.2	2.4	5.1
orms	4	1.3	1.4	2.2	1.3	0.9	1.3	1.4	1.5	1.9	1.4	0.5	1.1
ing Forms	4	1.9	1.5	2.6	1.3	0.6	1.7	1.9	1.5	2.6	1.3	0.7	1.7
	8	3.3	2.5	4.8	2.3	1.5	2.4	3.3	2.6	4.5	2.4	1.2	2.2
Community Members	4	1.9	1.4	3.1	1.0	1.3	1.6	2.4	1.4	3.1	0.9	0.7	1.5
by Form	9	4.2	2.2	5.0	1.7	0.9	2.1	4.7	1.9	5.0	1.9	0.3	2.2
by Position	3	1.3	0.9	1.2	0.8	-0.0	1.1	1.2	0.8	1.3	0.8	0.1	1.0
ing Letters	4	1.4	1.3	1.8	1.1	0.5	1.6	1.7	1.3	2.0	1.3	0.3	1.5
etters	8	0.7	1.8	2.2	2.7	1.5	2.6	1.3	2.3	2.3	3.0	1.0	2.4
ounds	4	0.3	0.8	1.1	1.6	0.9	1.5	0.6	1.3	0.7	1.3	0.1	1.4
ounds	6	1.5	1.7	1.7	1.6	0.2	1.9	0.9	1.3	1.2	1.6	0.3	1.6
	8	1.4	1.6	1.7	1.6	0.4	2.1	1.5	1.3	1.7	1.6	0.2	2.1
	9	1.2	1.4	1.8	1.5	0.6	1.4	1.4	1.3	2.0	1.6	0.6	1.7
nt Orientation	4	1.3	1.2	2.1	1.3	0.8	1.8	1.3	1.3	1.8	1.3	0.5	1.5
(A to Z)	26	5.0	7.0	11.7	8.5	6.7	7.9	4.5	7.0	11.4	9.0	6.9	8.5
Total	48	9.9	7.9	15.1	10.2	5.2	9.3	11.2	8.0	14.1	9.9	2.9	7.5
ing Numbers	4	0.9	1.1	2.0	1.3	1.1	1.7	1.3	1.2	1.5	1.2	0.2	1.3
umbers	6	0.5	1.2	1.6	1.8	1.0	1.8	0.9	1.9	1.2	1.7	0.3	1.7
ion	7	2.7	2.3	4.5	1.9	1.8	1.9	3.4	2.0	4.5	1.8	1.1	2.3
tion	7	2.4	1.8	3.5	1.5	1.1	2.0	2.7	1.5	3.3	1.4	0.6	2.0
trategies	8	4.1	2.5	5.3	2.1	1.2	2.8	4.5	2.3	5.0	2.1	0.6	3.0
umeral Agreement	3	1.2	1.1	1.6	1.0	0.4	1.2	1.2	0.9	1.3	1.0	0.1	1.1
& Subtraction	13	1.4	2.3	2.8	3.0	1.3	2.3	1.4	2.1	3.0	2.7	1.7	2.3
(1-30)	30	5.9	7.5	14.7	9.0	8.8	7.1	8.0	8.4	14.7	8.7	6.7	9.4
al	54	15.9	10.3	24.3	10.0	8.3	9.2	17.9	9.3	23.1	9.3	5.1	8.2
Terms Total	17	8.7	4.1	11.8	2.9	3.1	3.9	9.5	3.2	11.9	2.5	2.4	3.4
cation	15	4.7	3.9	5.7	3.5	1.0	4.1	4.7	3.9	5.4	4.0	0.7	3.8
lassification	9	2.2	1.8	3.0	1.8	0.8	2.5	3.1	1.9	2.8	1.7	-0.3	2.4
ion Total	24	6.9	5.0	8.7	4.8	1.8	5.5	7.8	5.2	8.1	4.7	0.3	5.2
al	16	4.2	3.3	6.3	3.5	2.1	3.6	5.0	3.2	5.2	3.2	0.2	3.5
le Total	10	4.4	2.2	5.1	2.2	0.7	2.0	4.3	1.9	5.0	2.2	0.7	2.6
al	8	4.6	2.8	5.5	2.7	0.9	3.3	4.5	2.4	5.3	2.7	0.8	3.1
	214	73.4	39.2	102.9	35.7	29.5	32.5	82.5	33.0	99.7	33.9	17.2	28.3
Score	---	25.0	15.5	32.4	11.8	7.4	13.2	29.6	13.8	33.3	11.4	3.7	13.2
al Age in Months	---	36.9	21.7	41.4	14.7	4.5	17.3	39.7	16.8	41.7	11.7	2.0	16.3
l Age in Months	---	50.8	---	---	---	---	---	52.6	---	---	---	---	---

TABLE 2

Parent Questionnaire Scales for Encouraged and Not-encouraged Children

	Maximum Possible Score	Encouraged: Pretest N = 44, Posttest N = 47 Mean	Encouraged SD	Not-encouraged: Pretest N = 51, Posttest N = 51 Mean	Not-encouraged SD
Parents' Expectation					
Pre	50	38.4	5.4	40.3	4.8
Post	50	37.7	5.3	39.3	4.7
Child Affluence					
Pre	6	2.6	1.6	3.1	1.8
Post	6	3.3	1.4	3.2	1.5
Child Educational Uses					
Pre	21	5.6	3.6	6.3	3.1
Post	21	6.3	3.6	6.9	3.4
Parents' Affluence	14	9.3	1.7	9.6	2.2
Years of Parents' Education	16	10.8	1.9	11.6	1.6
School Expectation					
Pre	12	5.1	3.2	5.5	2.9
Post	12	6.2	2.3	6.3	1.9

TABLE 3

Multivariate Analysis of Covariance of Cooperative Preschool Inventory

Dependent Variables: Cooperative Preschool Inventory Total Score

Covariates: Pretest total score and SES Index

Source of Variance	SS	df	F	P
Within cells	2494.653	85		
Regression	929.728	2	15.839	.001
S	27.464	1	0.936	.336
A	556.203	2	9.476	.001
SA	87.453	2	1.490	.231
E	19.571	1	0.667	.416
SE	29.396	1	1.002	.320
AE	69.727	2	1.188	.310
SAE	41.664	2	0.710	.495

S = Sex
A = Age
E = Encouragement

TABLE 4

Teacher Rankings

Rankings	Encouraged			Not-encouraged		
Scale	N	Mean	SD	N	Mean	SD
General Readiness	47	44.4	27.2	52	47.1	31.7
Verbal	47	45.9	29.2	51	49.5	29.4
Quantitative	47	44.6	25.9	51	45.6	29.3
General Intelligence	47	44.3	29.5	52	50.1	27.7
Attitude to School	45	47.2	26.2	51	49.6	26.3
Relations with Peers	47	45.2	25.7	51	51.3	27.9
Coordination	42	44.9	25.6	50	44.9	28.8
Cooperation	43	46.7	27.7	51	49.4	30.0