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EVALUATION OF THE MOTHERS HOME TEACHING PROGRAM

Introduction & Backround

Recent studies in child development have demonstrated that from early infancy children spontaneously exercise biologically given cognitive functions, constructing rudimentary sets, causal relations, correlations, and the like among stimuli susceptible to such constructions. These cognitive functions come to be expressed in increasingly complex activity taking the form of both experiment and play as the child grows older; and it is through such activity that children "learn", or develop cognitively.

Cognitive development in early childhood appears to depend on two sorts of environmental factors. On the one hand, the child's physical environment may present him with a broad or limited range of material objects and opportunities for experiment and play. On the other hand, his mother-centered social environment may stimulate, reward, neglect or repress such "epistemic" activity, thereby conditioning the child's readiness to respond to such opportunities for experiment and play as do present themselves. In both underclass communities of economically developed societies and the traditional majority communities of less-developed societies a number of social mechanisms inhibiting spontaneous experimental behavior and narrowly circumscribing play activity have been noted. Despite the frequently encountered maternal preoccupation with "giving her child what she did not have" and " getting her child a good education" low-status and overworked mothers in both types of communities generally are an integral if unwitting party to those inhibiting mechanisms when caring for their infants and young children.

Retrospective studies of Project Head Start and other experiments in compensatory pre-school education which were attempted in the U.S. over the last two decades have often argued for a home based and mother-centered rather than a school-based approach. Mother-centered approaches are held to have two main advantages. First, they are held to be more cost-efficient in "delivering" the specific content of the program curriculum to the child since they mobilize each mother to provide her child with individualized daily instruction according to a uniform plan. Secondly, and more importantly, they may modify and enrich the child-mother relationship itself, achieving several salutary effects which may survive the term of the program.

By enlisting her in the supervised practice of a number of specific non-authoritarian interactive teaching routines, mother-centered programs may impart to the mother an expanded definition of her nurturant role and an enhanced sense of her own worth as a competant contributor to the sacred cause of her child's education. They may impart to the child the extraordinary experience of his mother's direction and encouragement of his epistemic activity, an experience which may increase his odds of surviving the restrictive regimen of school and community as an epistimically vital youngster.

Evaluation Objectives

In this evaluation of the Pre-School Mothers' Program operated by the Holy Land Christian Mission, we are concerned with two main questions : Is the Program indeed effective in 1) " delivering" to its child clients specific cognitive gains and 2) in realizing more of the mother's potential as a positive

factor in her child's development ? If so, is the cost of the program justified by its apparent benefits ? .

Method

To assess Program effectiveness backround information was accumulated during introductory meetings with Program staff in five camp locations. Three locations - Arroub, Fawar and Shu'fat camps were then selected for further investigation during which a series of tasks presented as " new educational games" were administered to a total of twenty-five mother-child pairs in individual sessions. Fifteen of the children (the " experimental group") had taken the Mothers' Program and were at the time of testing enrolled in the Pre-School Centers. The remaining ten (the " control group") were also enrolled in the Pre-School Centers, but had not taken the Mothers' Program. Both groups were randomly selected and balanced for sex. Should the results of the initial round of testing have proven inconclusive, a supplementary sample of twelve mother-child pairs was available to increase sample size. During the testing days in each location more detailed discussions of Supervisors' observations and experiences were pursued.

In the testing an attempt was made to compare the two groups with respect to both the children's command of specific cognitive skills and specific features of the observed mother-child interactions. Brief accounts of the testing procedures and results are presented below.

Taks Set 1 " The Animal House"

Goal : To assess children's ability to relate familiar objects of two categories into cross- category pairs and to construct and coordinate sets.

Materials: 6 - 7 colored pegs in each of four colors : black, white, yellow and blue : four identical rimmed metal dishes : a board on which were printed five identical pictures of each of four animals (dog, cat , chicken, fish) arranged in different sequences into four columns and five rows. Beneath each picture was a hole accommodating a colored peg. At the top of the board was a picture of each of the four animals, under each of which a differently colored peg was glued in place. (See Illustration 1)

Procedure: 1) Children were shown a peg of each color and asked to name its color. Then they were asked to sort all of the pegs by color into four metal dishes.

2) Children were shown the animal picture board and asked to name each of the four animals pictured at the top of the board, and the color of the peg under each picture. The examiner then pointed to a picture of each animal in the board's first row and asked the child to name the animal and indicate which dolcr should be placed beneath it. If necessary, the examiner referred the child to the appropriate color and picture combination at the top of the board. Mothers were asked not to prompt their children " so that each child would have the chance to discover by himself how to play the game".

3) The child was then asked to place a colored peg under each animal picture on the board according to the examples at the top. Each correct placement was praised. Whenever a child erred the examiner called

his attention to the appropriate model color/picture combination, and prompted him until a correct placement resulted. When pegs had been correctly placed under all of the animal pictures the child was praised for completing the "game" successfully.

Results: All children tested named the colors and animals and sorted the colors successfully. Significant differences appeared among the two groups, however, in matching colors to animals. Three distinct levels of performance were distinguished. Some children failed to construct any correspondance whatever between animal picture and color, or simply failed to understand the task throughout its duration.

The performance of other children evidenced their having constructed four discrete or un-coordinated 1 : 1 pairings between specific animal pictures and specific colors, but failing to construe each specific animal and color pairing as one of four complementary pairings.

The performance of the balance indicated their having constructed a 4 x 4 coordinate problem space in which each of four colors was paired with a different one of four animals.

The most striking feature of the results summarized in Table 1 below is that, of the five children who demonstrated the ability to coordinate sets, all had taken the Mothers'Program.

Although set coordination was not exercised in the Program curriculum, the concept of sets was well exercised. Our results suggest that the curriculum has indeed been effective in bringing children to the threshold of set coordination.

Table 1

	No Correspondence	1·1 Pairings	4x4 Coordination
Experimental GP.	1	9	5
Control Group	3	7	0

Task Set 11

Goal :

1) To assess Mothers' ability to construct a story from simple pictures and relate it to their child.

2) To look for evidence of Mothers' consiciousness of and readiness to profess preference for non-authoritarian child-rearing options.

Materials:

Two sets of picture cards, each containing three " standard" cards depicting the first part of a story when arranged in proper sequence, and three " optional" cards depicting three possible outcomes for each story. The two sets are reproduced in "Illustration Two".

Procedure: The three " standard" cards of each set were placed in a top to bottom sequence face up in a column in front of both mother and child, and the three " optional" cards were placed to one side. Mothers were asked to compose a story based on the three "standard" cards and relate it to their child, choosing one of the "optional" cards which best completed their story. The child was asked to listen well to his mother's story and tell his own version after his mother had finished. The examiner invited each mother to help her child as she saw fit.

Observations were recorded in the following areas:

1) Mother's choice of outcome as expressed both in her choice of concluding picture and her actual description of the story's conclusion.

2) Mother's story-telling aptitude: A - was her story elaborated or skeletal ? B - Did she succeed in coherently interpreting the four cards in the order in which they were presented ? C- Did she attempt to explicitly relate the action in her story to her child's terms of reference?

Results: No difference was discernable with respect to mothers's choices of outcomes between the experimental and control group, In the first picture set about two-thirds of the mothers in each group chose an outcome in which the "mother" scold's the "child". The remaining one-third in each group chose an outcome in which the child and mother together pick up the broken pieces. In the second picture set roughly three-quarters of the mothers in each group completed their stories with the school children making mayhem when their teacher left the classroom. The remaining quarter concluded their stories with the children maintaining a rigid silence.

Significant differences were apparent in the way in which mothers composed and related their stories, the differences being most pronounced when comparing the illiterate and semi-literate mothers in each group. (One mother in the experimental group was excluded from this and subsequent functional comparisons of the mothers since she herself did not participate in the Program but delegated the responsibility to her oldest daughter). Four of six mothers in the experimental group who were ascertained to be illiterate or semi-literate composed at least one well-elaborated story and related it to their child's terms of reference. One mother in this group failed to construct a single coherent skeletal story in her two attempts. By contrast, all but one of the five illiterate or semi-literate mothers in the control-group failed to address their child's terms of reference or elaborate in any other way on the central action depicted in the pictures. One of the mothers here also failed in both attempts to construct a coherent skeletal story interpreting the action depicted in the four-picture series.

Although these results are open to a variety of interpretations, the writer doubts that they reflect any major differences between the two groups of mothers regarding their ability to interpret picture series or construct stories per se. More likely, the results reflect the fact that mothers who had taken the Program had consequently accommodated to the role of addressing structured presentations to their child and could perform the task at hand with greater ease and confidence.

Task set 111

Goals:

1) To compare thematic contents of mothers' interpretations of hypothetical situations involving a child as expressed in sentence completions addressed to their children.

2) To compare the children's facility and originality in performing the same sentence completion exercises following their Mothers' examples

Procedure: A seventeen item oral sentence completion exercise was performed with each mother-child pair. For each item the examiner read a sentence fragment for the mother to complete as she saw fit. After recording her response the examiner invited the child to " do as Mama did". The same sentence fragment was then repeated by the examiner, and the child's response, if any, was recorded.

Results: Mothers' responses were analyzed according to a number of thematic categories. No significant differences between the two groups of mothers were detected, though substantial individual differences were obtained within both groups.

Children who had taken the program were distinguished from their control group counterparts in two respects, however. Their rate of performing sentence completion items was somewhat higher than that of the control group (an average of 11.4 /17 versus 9.8/17). The frequency of original responses -i.e. responses which completed the root fragment coherently but differed in substance from the mother's example - was more highly discrepant (2.0/11.4 versus 0.5/9.8) The number of experimental group children who ventured one or more original responses was 9 out of 15 versus 4 out of 10 for the control group. Children giving two or more original responses numbered seven for the experimental group and one for the control group. If these original responses are excluded from our first calculation of average rate of performing sentence completions, essentially no difference in the rate of performing sentence completions replicating mothers' examples remains. The difference expressed in our first result is entirely accounted for by the difference in the number of original completions.
Our results do not reveal any inter-group differences in the children's capacities to perform a novel verbal task imitatively. They do, however, strongly confirm our subjective impression that children who had taken the program are more ready in the presence of both mother and strangers to function generatively and autonomously.

Task Set IV

Goals:

1) To compare children's performance in a group of eight visual discrimination problems of varying degrees of complexity. The task combined in hierarchal fashion several cognitive skills, only some of which were exercised by the Program curriculum.

2) To observe the incidence of different styles of maternal intervention as the children attempted each problem.

Materials: Nine sets of 4-6 cards each including one practice set. Within each card set all cards but one were printed with identical assortments of one-to-three solid bi-symmetrical shapes in one-to-three colors. The "odd" remaining card had one more or one less of one shape in one color. Color and shape variables were organized so that on any given card one particular color could occurr in one shape only, though the same shape could occurr in more than one color.

Procedure: In a number of practice exercises employing colored wooden pegs and other solid objects the children practiced identifying which of several collections of similar objects contained a disparate number of some object in some particular color. During these exercises the children were taught to ignore differences in the position and arrangement of the collections being compared, to attend to color as the key to classifying objects within each collection and to compare the collections by counting the number of objects in each dolor-keyed class. When each child had correctly identified the odd collection twice in succession, the practice card set was spread out before him and he was prompted to count the colored shapes on each card, identify the " different" card, and tell why it was different. Then the same procedure was conducted for each of the eight experimental sets, with the examiner prompting the child to count and try again after each incorrect choice until the child selected the odd card in the set: Mothers were told that through this exercise her child would be learning how to perform a new task. He was not expected to know how to do it properly from the start, but would " discover the trick" in his own time. Mothers were neither discouraged from intervening nor invited to participate.

Information on each child's performance was recorded on up to three trials for each set according to a uniform scoring method supplemented by observations noting the nature and frequency of his mother's interventions.

Results: Several different anylyses and scoring methods applied to the data failed to reveal any significant differences between the performance of the experimental and control groups. For each of three scoring methods used, in fact, the control group emerged with slightly higher average scores. It is likely that differences in the interventional behaviour of the experimental and control group mothers (discussed below) have biased the results obtained from the children themselves. In any event, we found ourselves unable to infer much regarding the children from this data .

Sex differences, which were surprisingly not significant in the previously presented results, were here quite pronounced with the girls out-performing the boys in each of the two groups.

Despite the complexity of this task, and its scheduling at the end of the examination session when the children's attention and stamina should have been fading, our results do strongly suggest that mastering exercises of this order is within the reach of a majority of the children in the Pre-School Centers.

Significant differences between the experimental and control groups did emerge when mothers' interventions were compared. Interventions conforming to the following types were noted:

A) Mothers paraphrased or explained examiner's instructions to her child , or gave the child hints or suggestions as to how to go about performing the task without indicating answers.

B) Mother praised her child's correct choice or rewarded child with affection.

C) Mother directed her child to a particular choice before the child could indicate his own decision.

The average incidence of these three types of interventions are presented below.

	Avg. Interventions	Type A	Type B	Type C
Experimental Gp.	6.0	2.6	3.8	0.6
Control Group	6.1	1.4	3.4	1.3
All	6.04	2.12	3.64	0.88

These results strongly suggest that the experience of the Mothers' Program may indeed have positively affected the Mothers' Functional understanding of their role in their child's learning process. These effects were expressed in mothers' greater readiness both to defer their interventions until their child had conducted his own decision making process, and to address the process itself rather than merely directing the child's final response when they did intervene.

Observations on Program Delivery

In each camp location the Program is " delivered" to the mothers and children in their homes by four teachers working on their own part-time schedules, under a Program Supervisor who logs their work.

The curriculum consists of twenty-six intensive weekly units. Each unit incorporates detailed verbatim instructions and materials for a variety of totally programmed daily activities to be conducted by each mother with her child. During weekly visits to each home assigned her, a teacher explains and demonstrates how each new

unit's exercises are conducted. Lesson materials in each unit are presently low-cost mimeographed Arabic Language translations of materials originally produced for a similar program for disadvantaged Israeli children. Special efforts are required from teachers when explaining the use of each unit to those mothers who are illiterate. We were not in a position to assess how effectively this difficulty is overcome.

An adequate level of motivation and reliability, as well as consistency of approach appear to be the most important qualities required from supervisors, teachers and mothers alike. In general, the mothers appear to regard the Program as a welcome opportunity to get their children an early start in their education, which they usually understand to mean rote learning. Though the educational approach embodied in the Program eludes them for the most part, their enthusiasm and readiness to comply with its practical regimen is most evident. Several mothers happily recalled instances where their child spontaneously employed a term or skill aquired during the Program, gratifying members of the household- and amazing the neighbours! From both mothers' and teachers' comments it appears that participation in the Program does lend some prestige to the mother, and arouses the interest of her neighbours and peers to participate themselves in subsequent cycles.

Virtually all the Program teachers are un-married young women who also teach in local schools. Those with whom the writer met expressed enthusiasm for the Program in terms closely resembling those of the mothers themselves. Their job brings with it a certain degree of prestige, and most compared it favorably with their school teaching experience. Compensation scales for teachers and supervisors alike are modest, but compatible with prevailing private institutional scales. This writer has the impression that in general the teachers perform their assigned functions conscientiously and competently, though he could not observe them in action.

Recruitmant of Program teachers is presently done by the Supervisors in each location. The fact that young un-married women are usually selected exposes the Program to the disruptive effects of a high rate of teacher attrition and the frequent necessity of finding and training replacements in mid-cycle on very short notice. It is customary for such young women to accept work in the interval between their graduation and marriage, at which point they must give themselves over entirely to house-hold and child-bearing duties, at least for several years.
Marriage is arranged in a matter of weeks or even days, and the woman herself generally has only the smallest advance notice of its approach.

If teacher recruitment were to give priority to school teachers who were beyond prime marrying age (i.e. in their late twenties and above), or to married women who had returned to work, the attrition problem could be diminished substantially.The Program would also benefit from a teaching staff that could accumulate more experience and refine their approach to their work within the Program.
As with any innovative project in its first stage of implementaion, the primary concern has been with providing a clear and effective system of functional formulas for staff to follow, and putting the system into practice .This has been successfully accomplished in this writer's judgement, thanks largely to the extraordinary efforts of the Program's peripatetic Directors and Coordinator.

Presently all but one of the local Supervisors have completed their first year in the Program.After mastering their assigned functions and assimilating more of the pedagogical approach underlying the curriculum they should be able to expand their own contribution to the Program's effectiveness, if the needed resources and direction are available. From conversations with them the following observations emerged:

They, more then anyone else, " represent" the Program in their localities.In several if not all cases they also enjoy a certain stature in their own right.Their relationship with mothers participating in the Program is not a mechanical one.They often are perceived as resources in their own right, people whose role is to advise the mother and, ultimately, to help promote her child's success.As the Program itself gains credibility, these perceptions are reinforced.In addition to the financial incentive to perform her job, her growing involvement in this role can become an important source of job satisfaction and motivation.

All three supervisors interviewed in depth, one of whom has completed her second year, expressed readiness to do more or know more. Two of them described personal initiatives in suggesting to mothers supplemental learning activities which incorporated the curriculum's approach.Two had suggestions for improving the present materials.One expressed a desire to dispense supplementary materials in response to mothers' requests after the term of the Program, and felt that some provision for facilitating the continuation of mother-child learning activities when mothers were so inclined could compound the benefits of the existing Program.This writer can only enthusiastically agree.

Cost -Effectiveness

At a total budgeted cost of $ 54,600 for one year, the cost per child amounts to less than $ 150 for a twenty-six week intensive Program, less than $ 25.monthly.This is slightly more than the per student expenditure in local government schools, slightly less than

the average cost of half-day placements in local charitable society nurseries. Neither offers benefits comparable in quality or extent to those which are evident in the Mothers' Program.

Conclusions and Summary

The Program has in this writer's opinion been demonstrated to be effective in the following respects:

1) Ex-Program children have demonstrated a hightened level of readiness in pre-academic skills, in terms of both specific cognitive gains and preparation for new learning experiences (Task set 1, Task Set 111)

2) Mothers have emerged with new functional skills and role orientations that promote their child's development and enhance their appreciation of their own worth and competence. (Task Sets 11, 1V, interviews with staff and mothers themselves). While ex-Program mothers were not found to articulate different attitudes regarding childhood and their child-rearing roles, positive practical differences were demonstrated.

Staff appears to be highly motivated and convinced of the value of the Program. The quality of their discussion of its benefits, weaknesses and potential reinforces this impression. Some modification and supplementation of the materials might prove helpful at some future juncture, and several of the local supervisors might be usefully involved in this.

Signed

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ILLUSTRATION 1

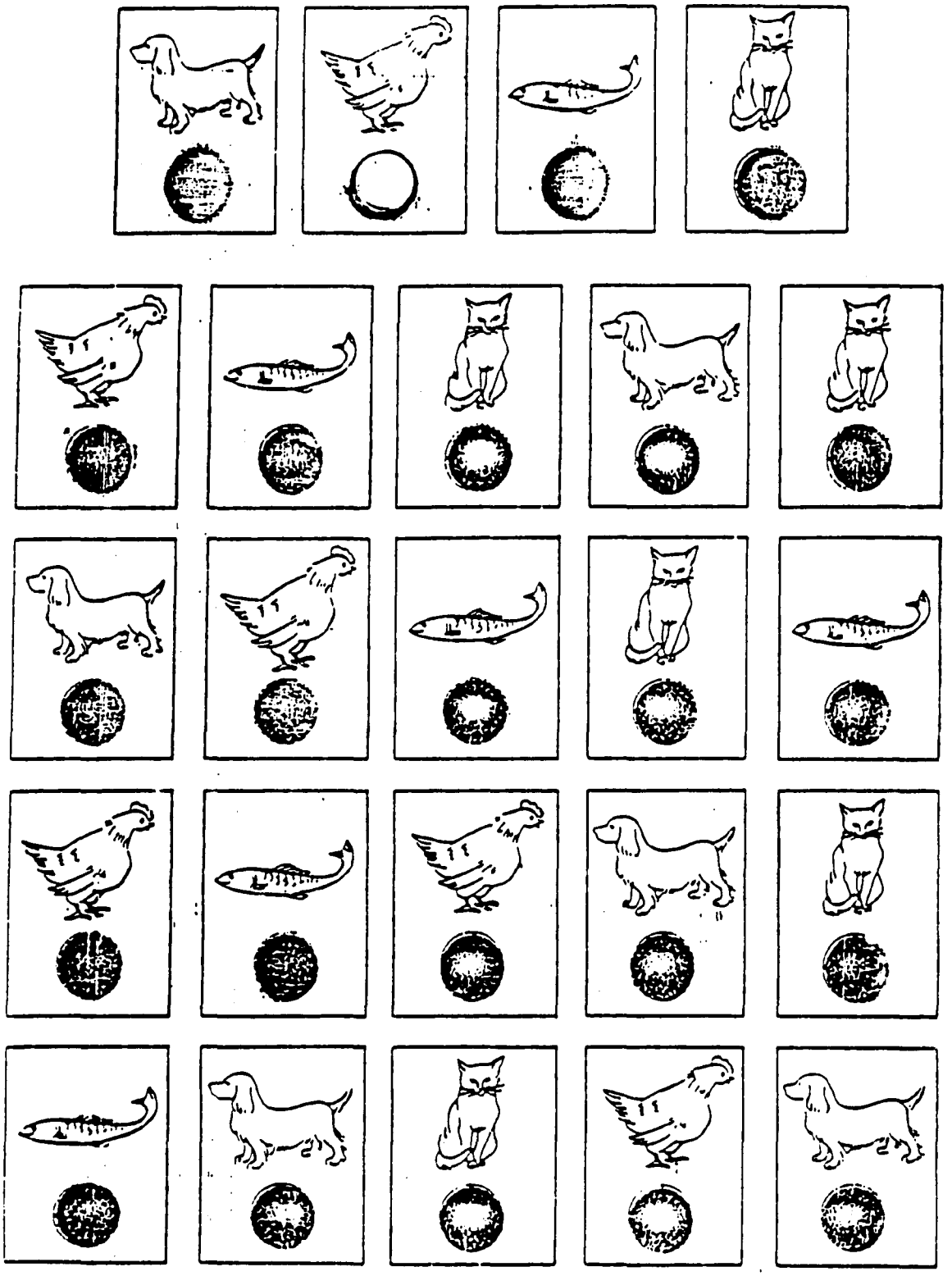

ILLUSTRATION 1
From: Wechsler Preschool and Primary Scale of Intelligence
David Wechsler, copyright The Psychological Corporation

ILLUSTRATION 11
From I.E.S. Test, L.A.Dombrose and M.S. Slobin
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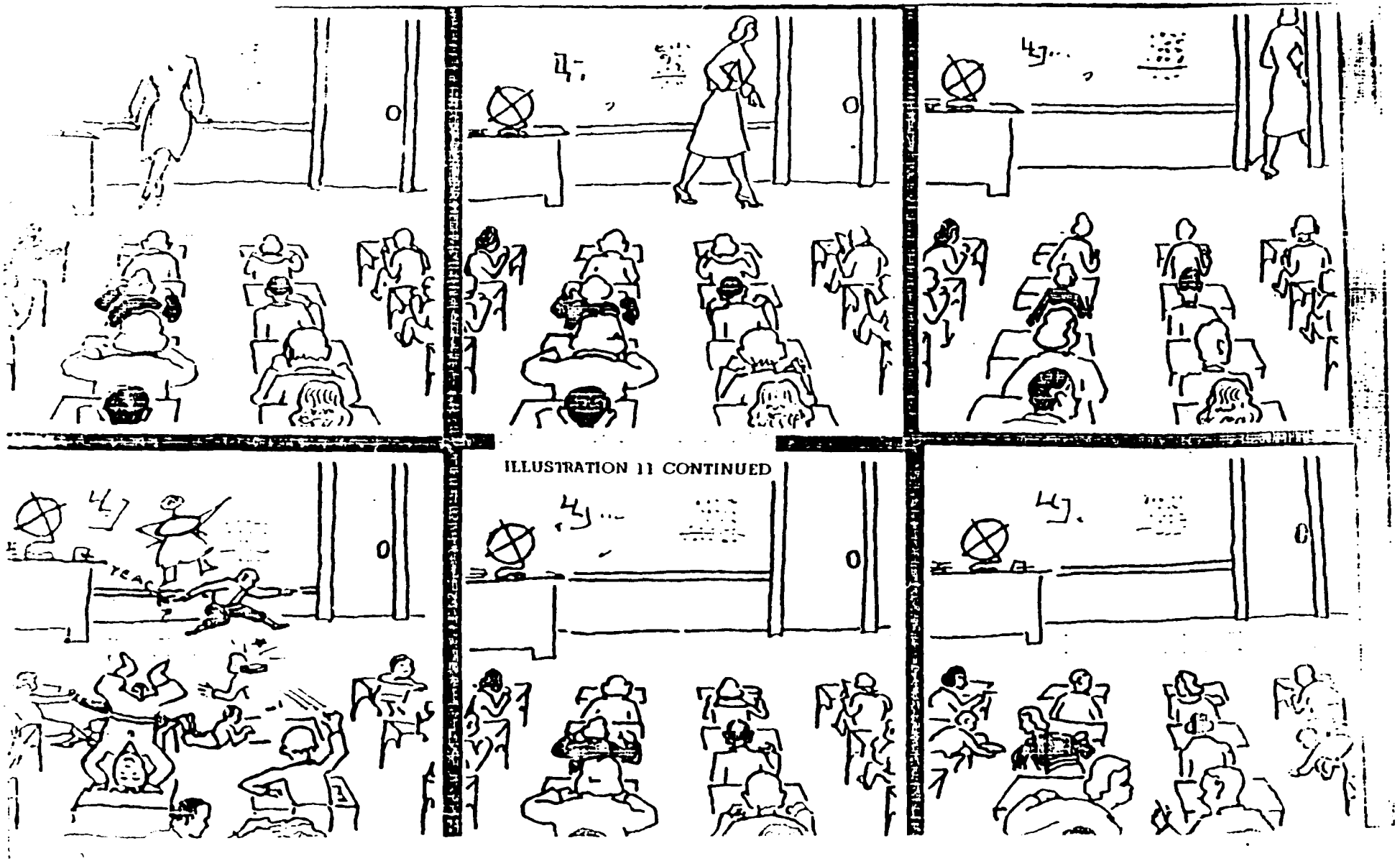

ILLUSTRATION 11 CONTINUED