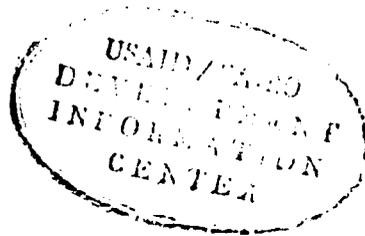


**REPORT OF THE WORKSHOP ON LOW-COST
TEACHER-MADE MATERIALS FOR PRIMARY
SCHOOLS IN EGYPT.**



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Part I

THE WORKSHOP

A. Introduction

This workshop, in a very real sense, was one of the first steps in the efforts of the Ministry of Education to bring about reform. Materials and the way they are used determine the nature of the education program. If the materials are limited to facts to be memorized, then the educational program is limited to the simple repetition of facts.

This workshop has introduced new educational technologies, new methods and materials. These are exciting new approaches to teaching and learning. Most of the materials made in the workshop could be made by any teacher at almost no cost. The important thing, however, is not the materials alone but the way they are to be used. All of them can be used to teach facts better, faster, and more soundly than the old lecture or blackboard and chalk methods. But much more can be taught. They can be used to create the independence of thought and action, the self-direction and self-control, the understanding and skill to participate as a democratic member of society that President Sadat envisions as the new role of education in Egypt.

B. Preparation

Training the Leadership Staff

The first meeting for the planning of the workshop took place June 20 at the Ministry of Education. Representing the MOE was Dr. Halim Grace and Dr. Sobhy Seif Attallah, Director of Primary Education.

Also present were eight persons who had been selected as potential leaders in the areas of science, mathematics, and social subjects. Dr. Stanley A. Applegate represented the U. S. Agency for International Development. The background of how the project came about was described. The real purpose of the workshop was stated as being a means of helping primary school teachers not only meet a critical need for teaching materials, but for them to learn some different ways of teaching as they use these materials to reach higher levels of learning.

An intensive period of staff training began. One difficulty encountered in this initial stage was in the selection of additional staff and in the elimination of persons who were not able to devote full time and energy to the workshop. Since it was a new experience, none of the persons selected knew what the demands would be in terms of time and energy. The term "workshop" meant to them that they would assume a passive role of doing what a leader ("expert") assigned. Even after a period of training and experience as a leader, one person pleaded with me to just tell them what to make and how to do it, and they would do what I said. I was asked to tell them ten things I thought they should make.

Another difficulty was in the use of educational language, not just in its translation, but in its meaning. This was as much a problem to me as it was to the Egyptians. For example, the term "readiness materials" meant to me materials used to help a child become ready to learn something such as to learn to read or to learn new mathematics concepts. To the Egyptians it meant materials that are close at hand, easily accessible or left over. The term "learning"

meant knowing the answer, acquiring knowledge, knowing facts, to the Egyptians. My definition of learning meant understanding on higher levels that led the learner to changed behavior. "Evaluation" meant examinations, especially at the end of the year. "Evaluation" to me meant making continuous judgments in the learning process, more by the learner than by the teacher. It meant that instant-feedback was most valuable in giving the learning positive reinforcement and the freedom and motivation to move on to the next task.

Team teaching, the use of learning games of all kinds (particularly simulation games), and individual instruction were educational methods that needed demonstration and repeated explanation. Group techniques of "brainstorming" and the skills of small group discussions that arrive at ideas to be brought back to the entire group were also taught. All of them were introduced as ideas that could be used in their own classrooms.

In the initial session on June 20th, the six levels of learning from Bloom's taxonomy were introduced and explained. The making of low-cost materials was not an end in itself. The way the new materials were to be used in teaching was the most significant factor in their value.

Bab El Louk Training Center for Primary Teachers in Cairo was chosen as the site for the workshop. The building was not available until June 27th. The leadership staff was under great pressure at this point to be ready for the opening of the workshop on July 9th. The classrooms had to be arranged in the most attractive and effective manner for small group activities. The leadership staff must develop new creative materials themselves for their own experience and to stimulate the thinking of participants when they arrived. Another

important use of these materials was that each of the selected workshop leaders was asked to do a teaching demonstration using these newly created materials. The planning and teaching must have as its objective the possibility of achieving a higher level of learning than that of memorized facts. The remainder of the teaching staff acted as students during these teaching demonstrations. The most valuable part of these demonstrations was the follow-up evaluation particularly as to the achievement of levels beyond the knowledge level. Both the demonstration and evaluation were painful for many of the leaders but it was a process of growth and they soon came to enjoy it as they developed increased confidence.

Daily evaluations of each session indicated that members of the leadership group were beginning to feel that they were becoming a team. They could have free discussions of ideas among themselves, even strongly disagree, and still these discussions could be learning activities. Critical evaluation did not threaten one's position in the group. Three teams of leaders emerged for the three areas of science, social subjects, and mathematics. Planning sessions were difficult at times. All members were not at the same level of seniority in the educational system and there was considerable awareness of status. The ability to work with people of various levels was cited as one of the values of the workshop by both the leaders and the participants.

Objectives of the Workshop - C.

Three main objectives were chosen by the leaders:

1. To motivate teachers to change from traditional methods of teaching to more creative methods through the use of low-cost teacher-

made materials.

2. To demonstrate the development and use of materials to make the teaching/learning situation more creative and interesting.

3. To help teachers develop materials in which students can be involved both in collecting raw materials and in using them to become creative and independent learners.

The initial objectives included the use of words such as "create a storm under the teachers". None of the staff at this point was a primary teacher or ever had been. An aspect of growth through staff training was a more sympathetic approach to the problems of the primary school teacher.

D. The Workshop

Letters were sent to the thirty-three school zones in Egypt inviting them to send three representatives, one each for science, mathematics, and social subjects. It was anticipated that ninety persons would attend. Thirty-one of the zones sent representatives and on July 9, 1977, when the workshop opened, there were one hundred and eight representatives in addition to the staff of twelve. There were sixty inspectors, thirty-five primary teachers, and ten teachers in Primary Training Schools. At the end of the first week the number of participants was reduced to seventy-eight. This decision was made by the leadership staff for two reasons: 1) Some participants were not involved in the workshop, and; 2) The groups were too large for the staff to be most effective as facilitators.

The Workshop was in session for three weeks. It opened at 9:00 a.m. The first part of each day was spent in a general session. A variety of activities occurred during these opening sessions. There were

demonstrations of newly created teaching materials. These demonstrations were followed by discussions of the teaching model and evaluations of new teaching methods by the entire group. These were lively sessions. General presentations were given in the areas of teaching such as: Teaching to Attain Higher Levels of Learning; Child Growth and Development; Rearranging the Calendar-Year to Facilitate Smaller Class Size; and Lower Operational Cost. There were presentations on how to collect low-cost materials and how to start activity periods in the school. Another valuable part of this morning period was the use of the same models to demonstrate teaching in science, social subjects, and mathematics. The objective was to help students see the interrelationships of these disciplines.

Following the general meeting, the participants spent the morning in one of the academic areas (math, science, or social subjects) developing new materials. The syllabus was reviewed and lists were made of areas that needed materials to make the teaching more interesting and clear. Participants were encouraged to work in groups, sharing their ideas. They were also encouraged to plan their projects by drawing diagrams and deciding on the best materials to use.

Overflow classrooms on the third floor of the building were made available for these group processes. A library opened at 8 a.m. each day and participants were encouraged to use its resources for new ideas.

To help in the actual construction of models, two craft centers were open with leaders to help in teaching how to make and use papier maché, paints, silk screening, and carpentry. Puppets, globes, relief maps, charts, math games, models of ancient tools, and historical events were the types of teaching materials created in these workshops. Each

participant was provided with material to make a flannel board.

Field trips were made to the Visual Administration Center of the Ministry of Education, the Agriculture Museum, the Islamic Museum and the Pharaonic Museum. The purpose of these trips was to stimulate ideas for new creative materials to use in teaching.

Some basic materials had been purchased to use in making these new models. Participants were asked to help find low-cost items. The following list shows the types of low-cost materials available: bamboo, palm tree leaves, empty plastic bottles, branches of trees, flints of different shapes and sizes, sand, clay, limestone, sandstone, shells, discarded newspaper, drug bottles or boxes, cardboard boxes, stones and seeds, beans, cotton, discarded bulbs, discarded batteries, discarded dry-ink pencils, boxes and bottles, hay of different types, rice hay, clay pots, plastic rolls for strings, waste material from different factories (leather, tin), match boxes, syringes, pins, and other discarded materials as suggested by the participants.

The final day of the Workshop, July 28, was an exhibit of the best teaching materials developed during the three-week workshop. Items were chosen using the following criteria: usefulness, durability, attractiveness, low-cost, well made, and safe for children to handle.

The exhibit gave all the teaching staff and participants, as well as visitors, an opportunity to see the wide variety of materials created. The atmosphere was one of a celebration and pride in accomplishment.

Throughout the Workshop, small rewards had been presented to participants for their best models, best idea notebooks, and best teaching materials for use with a flannel board.

Participants had submitted information about the teaching materials that they had created during the workshop. This information included a diagram, a list of materials used, directions for construction and how to use the model in teaching. The leadership staff in each class chose the best of these materials to go into a manual that will be produced by the Ministry of Education. A draft version will be sent to a large sample of primary school teachers in Egypt. They will be asked to use the information in the manual freely. If they have any reaction to its use or can make any improvement in it, they are asked to write about it. This information will go to the zone inspector who will send it to Dr. Halim Grace's office in the Ministry of Education. If teachers create other teaching materials they will be asked to submit these also. It is hoped that a large manual of low-cost teacher-made materials can be published, and can be used in all of the Arabic-speaking countries. This may become one of the most important results of the workshop.

E. Evaluation

Why Evaluation is Important

The highest level of learning is evaluation. The sooner the evaluating is done, the better. This is why the teachers of children need to provide many opportunities for exploration, discovery, questioning and group sharing. This frees the teacher to be accessible to evaluate constantly on the spot as learning is taking place. The least valuable evaluation is a tension-producing examination at the end of a year with a wait to find out if it is a "pass" or a "fail". It is often too late to make the learning fill the need of the student.

Evaluation was an integral part of the Workshop from the initial

stages. The leadership staff was asked to evaluate the training sessions on a daily basis. As they did teaching demonstrations with newly developed materials, the demonstration was evaluated. An in-depth evaluation of the Workshop was done at the end of the first week and at the end of the third week. Participants were asked to evaluate the Workshop in a variety of ways.

Evaluation by the Participants and Leaders

Evaluation by the participants indicated that the most valuable aspect of the Workshop had been exchanging ideas with colleagues. Working together to develop the many creative materials that were made was listed by many as their best experience. Equally important was increased knowledge in how to use these materials in teaching.

Thirty-five categories of teaching materials were listed as being created during the workshop.

When asked to list 3 new ideas learned, the most often mentioned were:

1. Working together and sharing materials.
2. Playing can be a way of learning.
3. How to make materials.
4. How to use materials.
5. Introduction to the levels of learning and their use.

All the participants except two said they would attend another workshop like this one if they were given the opportunity.

Suggestions for improvement related to having more specialists in teaching basic skills in making new materials such as how to make papier mache and how to mix paint. Another suggestion was that more raw materials should be accessible. The problem of having adequate amounts of materials for a group as large as this was a continuous one.

Since many participants were away from their home communities, they did not easily find low-cost materials themselves.

One positive evaluation expressed to me personally over and over again was that of having the opportunity to talk with someone personally from the United States about teaching. I was asked many questions about school curriculum, schedule, textbooks, teacher preparation, salaries, administration and, perhaps the most frequent, why I was still a primary teacher. That I had chosen to stay in a primary classroom was hard to accept, even with my explanation.

During the final week the teaching staff expressed many ideas and feelings about growth during the six weeks of working together.

Among these were:

1. Learning to work as teams.
2. Learning how to use evaluation effectively.
3. Eliminating the prestige of one's position as being important in a teaching/learning situation ... humility.
4. Learning stimulating new ideas and methods of creating change in the educational process.

My Own Evaluation

The workshop for making low-cost teacher-made materials had achieved its major goals. Changes in the original plans were necessary. The intensive training of the leadership staff that was considered vital to the success of the project eliminated more extensive visits to primary schools. Another change was that no primary school children tested the materials created in the workshop. This becomes a part of the follow-up plan through the use of the manual to be produced. Hopefully, the teachers' response will provide many additional suggestions

for a larger manual. Since the schools were not in session and the training school had no suitable facilities for teaching primary children, it was not feasible to create an artificial school setting.

The most positive evaluation that I have of the workshop is in the growth of the leadership staff and in the identification of additional leaders among the participants. For example, an inspector from Beni Suef visited me a few days after the workshop closed. He had plans made to hold a similar workshop in his zone that will have representatives from every school. He plans to model his workshop after the one he had just attended. The general inspector of sciences plans a similar workshop in science for all the zones. Such immediate vitality and enthusiasm shows an openness and readiness to improve teaching in the primary schools.

Several persons who are inspectors or supervisors expressed a real desire to return to the classroom and work as teachers using the ideas they had learned.

An inspector in Alexandria has a project underway in which low-cost materials are collected by children and many activities are planned that are creative, "doing", learning experiences. He plans to enlarge his program using ideas from the workshop.

One activity for participants was a group discussion (brainstorming) in groups of 8 to 10. Each group was asked to write ideas about how to use creative materials in a crowded classroom. Leaders were appointed for each group but the remainder were chosen by a random number drawing. It took several explanations and much encouragement to start the groups to expressing their ideas freely as they came to mind. Once the activity was started the sharing of ideas was so exciting it was difficult to bring the discussion to a close and get on to the next task.

Some of the ideas on this subject were:

1. Use of volunteers to help-parents and others.
2. Use of a project method of teaching where all teachers would work together on a certain theme for a specified length of time.
3. Change in school calendar year so that the school is open year round and class size is reduced.
4. Use of space in other public buildings for classrooms.
5. Use of problem solving methods in teaching, or dividing a subject into units, students working in small groups and proceeding from one unit to the next.
6. Use of field trips.
7. Use of the courtyard.
8. Development of more materials so that each child has access to sets of materials.
9. Longer school day and use of the building for extended activities.
10. Use of more audio-visual instruction through TV, radio, and films.
11. Use of more one-room schools in small communities.
12. Use of more advanced students as tutors for children who need help.

Many of the ideas suggested can be done by innovative teachers immediately. Others will need administrative approval and help. The mere fact that one of their greatest problems was recognized and they were able to share ideas made a positive approach possible.

The exhibit on the final day was a demonstration of what could be done to help teachers create materials. Some of these ideas could be

used commercially for large scale distribution. The trained staff could be used to continue workshops.

The workshop would have been a better learning experience if the physical facilities had been more suitable. For example, if there had been tables to work on rather than slanting desks, if there had been a summer school session for primary children in which the materials designed could have been tested within an actual classroom setting, the evaluation would have been more effective. If there could have been a larger team of technicians (one for each curriculum area), more learning might have occurred among the participants.

Despite problems and handicaps, it has been a rewarding experience to work with the fine, capable group of Egyptian teachers.

Part II

RECOMMENDATIONS FOR THE NEXT STEPS TO FOLLOW THE CURRENT EFFORT

In order that the momentum and enthusiasm of the workshop will continue to grow, the following recommendations are suggested:

1. Manual

The publication and distribution of the draft of the manual on low-cost teacher-made materials should be done as quickly as possible. This manual is to contain information about the best examples of teaching materials developed during the workshop in the areas of science, mathematics, and social subjects. Each teaching model will have a diagram, a list of materials needed for construction, directions for construction, and how to use it in teaching. The manual should be sent to every primary school teacher in Egypt.

2. Follow-up Response and Development of a Comprehensive Manual

The Ministry of Education should have a plan for encouraging teachers to test the materials in the manual and respond about the effectiveness of their use. Materials suggested will need adaptations to native materials that are available in the various zones of Egypt. Teachers should be encouraged to contribute new ideas for teaching materials they create based on the same criteria used in the workshop:

1. Usefulness
2. Durability
3. Attractiveness
4. Low-cost
5. Safe for students

Suggestions for further extension of the manual are that it be published after revision in loose-leaf form so that additions can be made at

periodic intervals. Also that it might be sold in other Arabic-speaking countries whose educational needs are similar to those of Egypt's. Profits from the sale might possibly help make it available to teachers in Egypt at no cost.

3. Continue the development of a trained leadership staff who could hold a series of workshops throughout all the zones. These workshops would have similar goals of creating and using low-cost, teacher-made materials with emphasis on their use in new methods of teaching. Since the large majority of the participants (all except 2) indicated that they would attend a similar workshop if another were held, this is a strong indication of a real desire for learning more about how to make and use materials for more effective teaching.

4. A similar workshop for training leaders with educational consultants in the curriculum areas would help prepare leaders for holding the workshops mentioned above. These same leaders would gain valuable insight into curriculum development and teaching methods.

5. The Ministry of Education should re-evaluate the selection process of students in Primary Teacher Training Schools. As changes are made at all levels to achieve the national goals, the status and training of the primary school teacher must receive its share of emphasis as being equally as important as other levels of the educational system.

Recommendations from the Leadership Staff of the Workshop

Dr. Mansour Hussein, the Deputy Minister of Education, addressed the workshop on July 9 at the opening session. He asked for practical suggestions as a result of their workshop experience. He cautioned that drastic changes cannot come about overnight.

Below is a list of recommendations from the leadership staff of the workshop to the Ministry of Education. Many hours of the final week of July 30 - August 4 were spent in discussing these recommendations. The entire staff reached a consensus of opinion that these are the recommendations they support as a result of this workshop on low-cost, teacher-made materials. This staff felt strongly that for even the teacher-made, low-cost materials to be used in a way that is a valuable learning experience, many of these recommendations were necessary. Others involve long range planning that they are eager to help initiate and become a part of the leadership for changes to achieve the national goals stated by President Sadat. They expressed a desire to have an opportunity to discuss their recommendations in detail with leaders in the Ministry of Education.

A summary of the recommendations which have been mentioned in the preceding evaluation follows:

1. Make the curriculum flexible to suit the local environment, the students' needs, and changing times.
2. Enlarge the Evaluation Committee (N.C. of E.R.) to include classroom teachers and students.
3. Introduce integrated subjects through the core curriculum or project method. End specialization.
4. Each subject to be planned throughout all levels in a continuous way.
5. Start an experiment of allowing governorates to author their own books to suit the needs of that particular area.
6. Produce books which not only give facts but also stimulate

interest through questions, experimentation. group and individual activities. These books should be colorful, well illustrated, and have good print.

7. Recognize that authors (a committee which includes representatives from primary school teachers) require at least six months or more to author a textbook.

8. Train teachers to produce low-cost materials through many methods: Workshops, audio-visual centers, libraries, exhibits, traveling work teams, films, and refreshing courses.

9. Send specialists and experts abroad for modern training. Bring experts and publications to Egypt for this purpose.

10. Increase the efficiency of school buildings by year-round use.

11. Open section in the Faculties of Education for graduating primary school teachers, beginning with science and mathematics.

12. Increasing the period of school training for three continuous months, beginning the fourth year.

13. Give the opportunity for new subjects, as modern math, to be offered to teachers as close to their homes as possible every year.

14. Require refreshing courses every five years in subject area chosen by supervisor.

15. As incentive to retain good primary teachers: timetable decreases from 24 hours to less, teachers ascend from classroom (C, B, A, Sr., Master) to Head of Staff after 30 years, while remaining in primary school.