UNIVERSITY INSTRUCTIONAL

MATERIALS PROJECT

(15)

PURPOSE AND GOAL:

Determine the feasibility of introducing modern teaching methods and materials into the Egyptian higher education system in order to improve the quality and increase the practical application of education in the fields of science and technology and in other fields related to social and economic development.

BACKGROUND:

Higher Education:

Since the 1952 Revolution, education has been expanded and given a high priority by the Government of Egypt, and free education has been introduced at all levels up through the higher education stage.

At the time of the 1952 Revolution, there were already four universities in existence, with a total enrollment of 35,016 students. Today there are 11 universities, throughout the country, with an approximate enrollment of 400,000 students.

This rapid increase has been possible, in part, by encouraging branches of universities outside of Cairo to become independent, and by upgrading higher institutes and other technological facilities. Education is free and

all university applicants with an acceptable high-school leaving exam are admitted. In addition, it has been estimated that the GOE is sending 10,000 to 18,000 graduates abroad every year, mainly to get higher qualifications in science and engineering.

Egypt also has a long tradition of providing education to other countries with less sophisticated facilities, both through admission of foreign students to her universities, and through the secondment of trained teachers and other personnel. For example, in 1975, Egypt seconded more than 20,000 teachers to Arab and other friendly countries, and this is a tradition which has been maintained and expanded.

Concern with the quality of education, and a continuous desire to make it relevant to the development goals of Egypt also has been apparent. One example of this concern was the 1971 GOE-UNESCO Regional Seminar on Science Teaching Improvement, held at Ain Shams. The purpose of this conference was in part, "to stimulate the exchange of ideas and information between leaders of science education, prepare teaching strategies, discuss a regional plan for the establishment of a regional Science Teaching Center for the Arab world."

Certain difficulties within the system have been identified and a need expressed for a system of education which will produce graduates who can more readily transfer the benefits of that education in a practical application to the solution of Egypt's development problems.

President Sadat, in his October (1974) Working Paper said: "The time has come to begin seriously this difficult task of revolutionizing the systems and concepts of general education ...." He said that world education is no longer limited to rigid curricula but " has become organically linked to the actions and requirements of society." The system " should be diversified as much as possible, to respond to the need for various expertise, specializations and skills required in development. All the means of modern science must be used " to collect, store, and distribute information, and to raise the standard of knowledge given to students in the schools, universities, and institutes."

PROJECT RATIONALE AND STRATEGY

The Egyptian Supreme Council for Higher Education has requested assistance from USAID Cairo in their search for ways to improve the quality of Egyptian higher education and to make it more responsive to the development needs of the country. In response to this request AID has contracted with

a number of technical specialists to assist in clarifying the problem and to make recommendations as to the role which AID might play. The following is a list of problems facing higher education in Egypt selected from among those identified by these specialists in studies of the discussions and recommendations of the Egyptian American Joint Working Group in Education and Culture, in interviews with teaching and administrative staff in the Egyptian universities and from personal observation of classroom activities, the university libraries and other facilities.

1. emphasis on rote memorization rather than on the comprehension of processes or the development of specific competencies.

2. predominant student role is that of passive receiver of information.

3. predominant teacher role is that of transmitter of information rather than manager of student learning.

4. a large and still rapidly growing student population.

5. staff and facilities which are inadequate in size to serve the mushrooming student population.

6. classrooms which are ill-equipped for anything but the one-way transmission of oral information.

7. use of the once a year written examination as the sole means of student evaluation.

8. cyclical display of student effort centering around the final exam.

9. heavy predominance of the lecture method as the primary, usually the sole, means of instruction.

10. relatively little assignment of printed materials other than the instructor's published lecture notes.

11. unavailability of textbooks, reference works, and other materials consistent with independent student learning.

12. highly decentralized libraries, which typically house very modest collections and whose manner of operation does not encourage student use.

13. extremely low utilization of audio-visual materials in teaching.

14. faculty salary structure which forces instructors to fragment their effort among teaching, tutoring, and extra consulting jobs outside the university.

Most of the problems can be organized into three main categories: Those related to teaching learning methods; those related to accessibility of learning resources; and those related to the nature of the learning materials themselves. It is also clear that the solution to one depends on solution of the others. It would not be possible, for example, successfully to introduce teaching methods which require

independent study of a wide range of library materials unless the university libraries were organized to make those materials readily available to students. Because these areas are so interdependent and interrelated, this project attempts to deal with them as a whole. The key would be to use instructional procedures and materials which require active student response and which can be carried out through self-instructional means -- shifting the focus from the teacher lecturing, to the student seeking out and using varied learning materials. It is for this reason that all the components of this proposed project -- textbooks, library development, and educational technology -- revolve around the concept of "instructional materials" and professional expertise to make effective use of these materials. A materials-based system seems to offer the most promising alternative to the lecture-based rote memory system which predominates in Egyptian higher education today. The design of this sort of material lends itself to a teaching/learning approach based on "process" learning, active involvement, diagnostic testing, self-pacing, and individualized use in general.

PROJECT COMPONENTS:

THE ROLE OF EDUCATIONAL TECHNOLOGY

The Educational Technology component of this project is addressed to the building up of faculty capability to use alternative instructional systems and the provision of incentives to continue to use such new approaches. For the

purposes of this project, the term educational technology is defined as a systematice approach to the analysis of instructional problems and the construction of alternative solutions. Preliminary analysis suggests that educational technology capability is race in Egypt. No university offers study in this field, few qualified experts exist, and none of the universities maintains an agency devoted to assisting faculty in the improvement of instruction.

Similarly, incentives to utilize innovative, more individualized teaching methods are largely lacking in the current Egyptian university system. Class sizes are large (in the Ain Shams Faculty of Education, for instance, they range from 50 up to over 200, in Cairo University there are classes which range up into the thousands). Teaching loads are heavy; 12 to 15 contact hours per week are typical. Faculty salaries are low (the highest rate is around 130 pounds, or $180 per month), requiring most instructors to hold one or two other outside jobs. Classrooms are typically overcrowded poorly equipped, and run-down in appearance. Teaching resources, such as library and audio-visual materials, are scarce and not well utilized.

In a system such as this the lecture/final exam system appears to be the path of least resistance. It reduces the need for individual student counselling, since all are treated alike with one mass message. It confines students to one

source of information, eliminating preparation of reading lists, reserve reading materials, library order, and outside sources of information which might challenge the instructor's expertise. It downplays or ignores assignments which would have students turning in research reports which would then have to be read and graded. It limits student evaluation to a single yearly exam -- a method which is widely accepted as the norm by all parties and which has the virtue (especially in the case of an essay exam) of lending itself to the arbitrary judgment of the instructor, thus limiting his accountability for the results.

The major disadvantage of the current lecture/exam system is that it tends not to be a very effective means of promoting student learning. It does not cater to individual differences; it does not promote steady and diligent effort; it focuses attention on merely verbal learning rather than mastery of skills or intellectual processes *per se*; it provides little or no enroute feedback to allow either student or instructor to correct his actions; and it fails to develop student inquiry or self-direction in his studies.

EDUCATIONAL TECHNOLOGY COMPONENT

The major outputs of this component are the establishment of pilot programs at four universities over a three-to-five year period and the establishment of a Department of Educational Technology in the Faculty of Education, Ain Shams.

Each of the pilot projects would have distinctive traits, thus supplying a variety of approaches to be examined. After careful evaluation it could be determined which of these approaches, if any, appears to offer fruitful alternatives to instructional improvement. The most successful models could then be considered for dissemination to the other universities of Egypt. The suggested sites are:

1) Minya University -- a smaller, rural university with a community services orientation; a new centralized campus is under construction; its facilities will be superior to those of other Egyptian universities . The educational technology program would attempt to serve all faculties within the central campus.

2) Ain Shams University -- urban university based in Cairo, program -- be focused in the Department of Biology of the Faculty of Education.

3) Cairo University -- the largest in Egypt; program in educational technology would focus on one function: the provision of more effective pre-service training in instructional methodology for new academic members of all faculties.

4) Alexandria University -- a well equipped Learning Resources Center exists in the Faculty of Medicine; program would support the extension of its services to other faculties.

At each of the above target institutions the Educational Technology component would take the form of an Instructional Development Center (ID Center). Although each ID Center might

take a different name and different shape, each would attempt to provide the target faculty with a "one-step shopping center" of instructional support services. A full blown ID Center will provide the following functions:

A. Data gathering and storage

1. Census of classrooms and other spaces: electrical power, rates of room use, etc.
2. Locations and holdings of libraries.
3. Other instructional services available, on-and-off campus: e.g. film rental sources.
4. Etc.

B. Faculty development activities

1. Orientation program for new faculty (e.g. include library orientation).
2. Pre-service and in-service workshops to demonstrate alternative teaching/learning approaches.
3. Visits to Egyptian universities by foreigners who can demonstrate the use of innovative instructional techniques.
4. Brief tours abroad to allow selected faculty and administrators to observe exemplary instructional developments and/or to attend conferences where such ID programs can be experienced.
5. Postgraduate study in Educational Technology and ID for people who will return to staff the ID Centers
5. Etc.

C. Consulting services

1. Provide general advice on instructional improvement.

2. Work intensively with individual professors or faculty teams on the analysis of needs and the design/evaluation of new instructional systems; emphasis would be given to setting up self-instructional arrangements. See Annex A for a distussion of possible incentives to offer faculty for undertaking ID projects.

3. Etc.

D. Audio-visual materials utilization

1. Acquire, maintain, and distribute audio-visual equipment needed to support ID activities.

2. Provide commercially produced AV materials required for use in teaching or in student independent study.

3. Maintain an"open shop" in which faculty can prepare their own teacher-made materials, e.g. ditto masters, overhead transparencies, flannel boards, etc.

4. Technical assistance in the production of more sophisticated AV materials, e.g. video tapes, audio tape editing, photography, etc.

5. Etc.

E. Dissemination of information

1. Use communication channels such as faculty newsletters to inform faculty of innovative teaching methods, e.g. activities going on at universities abroad.

2. Through media such as professional journals, inform the outside world about successful ID efforts undertaken locally.

3. Etc.

In addition, a department of Education Technology would be established in the Faculty of Education at Ain Shams which would produce graduates in Educational Technology to meet the demand at all levels of education. This is most important for the "spread effect" of the project. From this department educational technology specialists wll go to schools throughout the system--primary, secondary, and university and will be introducing innovations in teaching methods in schools in both urban and rural areas at all levels of society. The department would also do research on applications of Educational Technology to universities in Egypt, and serve as a consulting organization to other universities on Instructional Development problems.

Assumptions on which the success of the Educational Technology component rest are as follows: That the faculty of Educationa at Ain Shams will establish the Department of Educational Technology, and provide personnel to be trained to staff the department. That students will elect educational technology courses and there will be a demand for such graduates. That the four universities will establish the ID pilot project and that these programs will stimulate interest on the part of other faculties of each university. That the university

evaluation systems can be revised as educational technology based methods are accepted.

THE ROLE OF THE UNIVERSITY LIBRARY

The role of the University Library Component is to provide support to the Educational Technology Component through the establishment of libraries organized and maintained to support the teaching methodology described above and to provide a facility for the professional training of personnel to staff these libraries.

In order to achieve this conception of dynamic use and service of libraries, it is necessary for the user to know easily what materials the library possesses and to be able to find, use, and circulate these materials. This is possible only under the direction of adequate numbers of professional personnel with training in this type of system. Herein lies the most critical problem in library improvement in Egypt today, and it is complicated by many factors. The one library education facility in the country, the Department of Librarianship and Archival Studies, Faculty of Arts, University of Cario, has only granted 6 Ph.D. degrees since it opened in 1951. In the past five years of 10 candidates enrolled, 7 have received the Ph.D. degree. This is not enough to fill the Department vacancies, much less to fill library administrative positions.

There are other compounding factors. Status as a

Department precludes acceptance of any advanced degree candidates except those with undergraduate degrees in the same department. Other undergraduates interested in Library Science are restricted to "Diploma" programs. With status as a "Faculty", any qualified student could be accepted as a degree candidate.

Elevation of the Department to "Faculty"status would enable them to train more students, fill their own vacancies, and supply the surplus to other libraries. However, a larger number of faculty in the Department will probably be necessary in order to achieve this status.

Librarians within the university system , even with advanced degrees, have the status of senior clerks rather than academic status, and therefore qualified people are not motivated to seek these positions. With respect to the training abroad of present library department personnel in an effort to upgrade the faculty, senior personnel are reluctant to recommend degree programs and other training of presently employed staff because of the very real fear that as a result of this training, their candidate will find better paid positions as academics in the university or elsewhere.

THE LIBRARY COMPONENT

The library component of the project will play its role in the project through the establishment or upgrading of four units. There will be a new library school and a new Central Library at Minya University operating in conjunction

with these concepts and in coordination with the ID Center Pilot project there. Construction of the Central Library including open stacks and space for study carrels, as well as classroom and laboratory facilities for the library school is included in this project.

At Cairo University, the existing Central Library would be reorganized to make materials and resources of all Cairo University libraries more accessible and more relevant to a materials-based system of teaching. An addition to the existing central library will be constructed to house a student study center with multi-media study carrels for approximately 1,000 students to facilitate access and use of library printed and other media materials. An addition for 100 students would also be made to the library school to serve as a model demonstration center.

The curriculum of the Department of Librarianship and Archival Studies of the University of Cairo will be upgraded and expanded, and staff increased in order to provide graduates to fill the critical shortage of trained library personnel throughout the country and who are knowledgeable in the use of the library as a support to the new teaching methodology.

Professional support through library science experts will be necessary to accomplish this.

Consultants would participate in the teaching at the library schools, in order to prepare the needed professionals and to upgrade the curriculum. They would also work in co-operation with present library staff and administration at Cairo University in re-organizing the library into a Western type system, probably beginning with new acquisitions.

Participant training will be essential as a source of both degree librarians and as a means of giving modern library experience to non-degree candidates. Local support in the form of assistantships might be used to allow local degree candidates to finish their programs more quickly as well as to gain practical experience.

Necessary assumptions here are that sufficient personnel exist with an appropriate background and interest to be trained to carry out the modernization of the Cairo University Library and the establishment of the facilities at Minya, and that the faculties and departments at those universities will cooperate with a centralized library system. Further, in order to attract candidates for professional library training, the Department must eventually be upgraded to the status of a Faculty, and professional librarians (after their training is completed) must be given academic status and/or other incentives for remaining in the system. The expansion of the Cairo University facilities to meet the stated objectives and the establishment of a library school at Minya also assume construction

of additional facilities.

THE ROLE OF THE UNIVERSITY TEXTBOOKS

Given the development of a modern approach to teaching and learning and a library system working in coordination with that methodology, the third essential component is to provide materials for the libraries and classrooms which are consistent with this approach, that is, based on the principles of active involvement, diagnostic testing, self-pacing and individualized learning

Modern textbooks have special relevance for supporting the sort of instructional innovation which is being suggested here. The obvious advantages of modern texts are that they generally represent a high level of scholarship, and are up-to-date in relation of the latest thinking in their fields. But more important for our overall strategy, they provide a visible model of a different conception of the teaching/learning process. The most current modern textbooks attempt to be more than merely catalogs of information: first, the text is usually part of a larger package which includes a teacher's guide, suggested enroute test items, often a student workbook, and even correlated audio-visual materials. Second, the textbook itself and/or the accompanying workbook will frequently be designed to require active student response with feedback to the student about his response; in some cases exercises will be structured to branch the student to remedial or more

advanced material based on his response. Third, the whole focus of the text is likely to be on mastery of the thinking process used in that discipline, not just on factual information.

The lack of current demand for such materials results largely from two factors. The availability of such materials has been limited because of high prices and inefficient distribution. There is also a lack of motivation for professors or students to utilize such material. A basic assumption of this project, however, is that independent, problem solving methods of teaching will be stimulated and utilized which, by definition, will require textbook and reference materials of this type.

THE UNIVERSITY TEXTBOOK COMPONENT

The textbook component consists of donations, subsidies, and support for Egyptian or joint venture publishing of textbooks in Arabic.

In the case of donations, certain textbooks, in areas where English is the language of instruction, would be selected by the instructor, (and approved by AID) as course texts and multiple copies would be purchased by AID and donated to the university which would, in turn, loan them to students.

Subsidies would be applied in certain other cases, as regularly imported textbooks are too expensive to be within the reach of most students. The relative proportion of subsidies and donations has yet to be determined.

The most important, long-term objective of the textbook component is to encourage the publication, in Arabic of adapted, translated, and sometimes co-authored or independently authored textbooks and other materials consistent with, and supporting the modern educational technology promoted in the other two components of their projects.

The successful accomplishment of this component assumes that the proposed textbooks will be acceptable to students and professors as a learning tool, and that they can be made available at low cost. The assumption has also been made that AID subsidies can be phased out by the end of the project without reducing rate of growth of the publishing of modern university textbooks and other materials.

END OF PROJECT STATUS

By the end of the project, the following results are expected:

EDUCATIONAL TECHNOLOGY

The Department of Educational Technology at the Faculty of Education, Ain Shams will be producing research applications of Educational Technology in universities on Instructional Development problems, and producing graduates in Educational Technology to meet demand at all levels of education.

The four pilot IB Centers will be established, and expanded to service the entire university. Other university departments [illegible] universities will have been stimulated

by these centers to introduce methods and materials based on educational technology.

LIBRARIES

The Faculty of Library Science, Cairo University will be enlarged and the new School of Library Science will be established at Minya. They will be producing M.A. an Ph.D. graduates who can perform in a professional manner the management of libraries, the acquisition and organization of library materials and the provision of reference and retrieval services, and who can also serve as teachers of modern library techniques, and systems.

Cairo and Minya Universities will have created modern open-stock centralized libraries with common cataloging and access to libraries of faculties and departments. There will be a sophisticated Bibliographic Laboratory for the rapid and thorough training of students in the Faculty of Library Science at Cairo University.

TEXTBOOKS

There will be high quality, modern U.S. and Egyptian textbooks in use in many faculties, replacing the published "professor's notes," and providing an approach consistent with the new methodology.

The U.S. and U.S./Egyptian Joint Venture publishing of university textbooks in Arabic will be self supporting in the Arab world and will no long need a subsidy.

INPUTS-AID CONTRIBUTION

Inputs necessary to achieve this end-of-project status include technical assistance, participant training, construction commodity support, and supplementary logistic support. AID will provide the funding for a contractor who will be responsible for all three components of the project.

EDUCATIONAL TECHNOLOGY

For the Educational Technology Component, the projected need is for a Director who would also be responsible for the establishment of the Ain Shams Department of Education Technology. Four other ID specialists would also serve as long term consultants, one at each of the four ID Center Pilot Sites. Approximately 15 3-month TDY's in various specialties would be available.

Promotion of indigenous professional expertise would be accomplished, in part, by the participant training of 21 Ph.D. level and 24 Masters level candidates, and the inclusion of a total of 24 non academic short courses. Special seminars and other local training would be provided as necessary.

LIBRARIES

There would be two long term library specialist consultants at Cairo University and one at Minya for the duration of the project. One of the Cairo based consultants would spend part of his time at Minya University Library School, as determined by the needs of the project. They would be supported annually by three short term consultants, each in-country for approximately three weeks.

Twenty-four Ph.D. and M.A. candidates would be admitted to programs in the U.S. and there would be two short term non-academic participant training programs each year. Seminars and local training courses would be provided as necessary.

Commodity support will be determined later, as facilities are developed and needs become more clearly specified.

New facilities would be constructed for the Faculty of Library Science and the Central Library at Cairo University and the Minya Central Library and School of Library Science.

TEXTBOOKS

Inputs to the textbook component of the project will consist primarily of subsidies for the publication of low-cost Arabic language editions of modern university textbooks, including both translations and work originally produced in Arabic. There will also be some limited donations of English language books in those fields where English is the medium of instruction such as medicine.

An organization with strong private sector experience in textbook publishing and distribution in the Middle East, possibly an Egyptian firm, will be subcontracted to handle the textbook component under the overall contractor for the project.