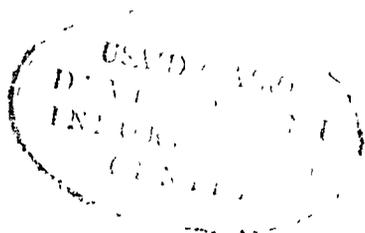


CONCEPT PAPER:
UNIVERSITY INSTRUCTIONAL MATERIALS,
EDUCATIONAL TECHNOLOGY COMPONENT



A Report Prepared for
U. S. Agency for International Development
USAID/Cairo

by
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February 6, 1978

Contract for:

Library Science Consultant Services
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A. I. D. PROPOSED PROJECT:
UNIVERSITY INSTRUCTIONAL MATERIALS

The Problematique

It is widely acknowledged by Egyptian educators, as well as by outside observers, that the quality of instruction in Egyptian universities lags well below the standards required for effective national development.

The problematique, or nexus of interrelated problems, shows itself in the form of a number of visible elements:

- 1) a large and still rapidly growing student population; admission to higher education is free and open to all who obtain sufficient scores on secondary school-leaving examinations.
- 2) staff and facilities which are inadequate in size to serve the mushrooming student population.
- 3) classrooms which are ill-equipped for anything but the one-way transmission of oral information.
- 4) use of the once-a-year written examination as the sole means of student evaluation.
- 5) cyclical display of student effort, centering around the final exam.
- 6) heavy predominance of the lecture method as the primary -- usually the sole -- means of instruction.
- 7) relatively little assignment of printed materials other than the instructor's published lecture notes.
- 8) highly decentralized libraries, which typically house very modest collections and whose manner of operation does not encourage student use.
- 9) extremely low utilization of audiovisual materials in teaching.
- 10) emphasis on rote memorization rather than on the comprehension of processes or the development of specific competencies.
- 11) predominant student role is that of passive receiver of information.

- 12) predominant teacher role is that of transmitter of information rather than manager of student learning.
- 13) faculty salary structure which forces instructors to fragment their effort among preoccupations such as teaching, tutoring, and consulting jobs outside the university.

An Approach to the Problematique

A problematique such as this is unlikely to be resolved by intervention in just any one of the problem areas. In order to bring about some change in the instructional process at least two conditions are necessary: student and teacher access to a wider variety of instructional materials to enrich the learning process, and incentive for teachers to alter their methods of instruction in order to make best use of whatever resources are available.

The two conditions stated above may not be sufficient conditions for improvement in the quality of university education. For instance, change in government policy regarding admissions and regarding faculty salaries may be necessary for large-scale amelioration. But the aspects of "access" and "incentive" are ones to which A. I. D. may at least be able to make some significant contributions.

The most fruitful role of A. I. D. might be to provide some tools for breaking out of the vicious circle of high student-to-faculty ratio, reliance on lecture method, singular final exams, rote memorization, and underutilization of enriching materials. The key would be to encourage a gradual transition to wider use of instructional procedures 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." A materials-based system seems to offer the most promising alternative to the lecture-based, rote memory system which predominates in Egyptian education today.

American textbooks have special relevance for supporting the sort of instructional innovation which is being suggested here. The obvious advantage of American texts is that they generally represent a high

level of scholarship, up-to-date in relation to 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 American textbooks attempt to be more than mere 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.

Thus the total 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. These are the same tendencies which the project would attempt to encourage within the overall pattern of Egyptian university teaching.

Suggested Project Components

The approach to the problematique which is discussed above implies a project with several interrelated thrusts. One requirement is to assist the development of a textbook publication industry capable of supplying Egypt's long-range needs for low-cost, well-designed texts.* A second requirement is to support the growth of a library system within the universities in order to assure that instructional materials acquired in the future are housed and maintained in such a way that they can be fully and effectively utilized by students and faculty. The third requirement is to stimulate university educators to adopt newer, more progressive approaches to teaching -- approaches which promise greater learning effectiveness and an escape from the lecture/exam stereotyped routine.

The rubric for this last requirement could be "educational technology" -- a term implying a systematic approach to the analysis of instructional problems and the construction of alternative solutions

*The actual adoption and use of such texts by instructors is another matter. As William Childs has pointed out in his reports, private sale of lecture notes is a major source of income for many professors. Published textbooks would be seen by them as a major competitor.

In current practice, this often takes the form of self-instructional modules which require active student response, feedback, self-pacing, and branching according to individual needs.

- For details regarding the Textbook Provision thrust, see William Childs' report

- For details regarding the Library Development thrust, see John Hafenrichter's and Ahmad Gamaluddin's reports.

- The remainder of this report will deal with the Educational Technology thrust.

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 construct and continue to use such new approaches. Preliminary analysis suggests that educational technology capability is very rare in Egypt. No university offers study in this field; few qualified experts exist; and none of the universities maintain 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 is typical. Faculty salaries are low (the highest rate is around 130 pounds, or \$186 per month), requiring most instructors to hold one or two other outside jobs. Classrooms are typically overcrowded, primitively equipped, and run down in appearance. Teaching resources, such as library and audiovisual materials, are scarce.

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 counseling, since all are treated alike with one mass message. It confines students to one source of information, eliminating bothersome reading lists, preparation of reserve reading materials, library orders, 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 or such, which would then have to be read and graded by the instructor. 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 this lecture/exam system is that it tends to be a rather ineffective 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; it fails to develop student inquiry or self-direction in his studies; and so on.

The program described in the following pages looks toward the establishment of pilot activities aimed at encouraging faculty to experiment with new methods of teaching. It is immediately acknowledged that providing the tools means little unless inducements are given for using those tools. Since this issue of incentives for faculty effort is so critical, an extensive discussion and some suggested solutions is appended as Annex A.

Educational Technology Component

The basic recommendation of this report is that AID support the establishment of pilot programs at four universities over a three-to-five year period. Each of the pilot projects would have distinctive traits, thus supplying a variety of models to be examined. After careful evaluation it could be determined which of the models, if any, appear to offer fruitful approaches to instructional improvement. The most successful models could then be disseminated to the other universities of Egypt. The suggested sites are:

- 1) Minya University -- a smaller, rural university with a community service 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 to be focused in one Faculty, the Faculty of Education.
- 3) Cairo University -- the largest in Egypt, program would focus on one function: the provision of more effective pre-service training in instructional methodology, cutting across 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 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-stop shopping center" of instructional support services. A full-blown ID Center might perform the following functions:

- A. Data gathering and storage
 1. Census of classrooms and other learning 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.
 6. 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 discussion of possible incentives to offer faculty for undertaking ID projects.
 3. Etc.
- D. Audiovisual materials utilization
1. Acquire, maintain, and distribute audiovisual 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.

- F. Renovation of facilities: modifications of existing buildings where needed to support ID activities
1. Office space for the ID Center -- reception area, staff offices, conference rooms.
 2. Experimental classrooms -- several classrooms at each site would be renovated to allow maximum use of varied instructional configurations:
 - a) ample electrical outlets at front and rear for AV equipment.
 - b) separate conduits for (future) video wiring.
 - c) movable seating, preferably tablet arm chairs.
 - d) light control -- opaque draperies and rheostat-controlled room lights.
 - e) modern multi-purpose chalkboard.
 - f) retractable projection screen mounted at front.
 - g) painting and other decor items to provide an attractive atmosphere.
 - h) acoustical treatment to reduce echoes.
 3. Demonstration classrooms -- a more modest refurbishing than that described in #2 above, to be applied to all the classrooms in a given building.
 4. Independent study rooms -- quiet, well-lighted spaces outfitted with tables and/or study carrels at which students would use self-instructional modules. (This function could be part of the library.)
 5. Audiovisual laboratory
 - a) ample electrical outlets around all sides for operation of hi-amperage equipment such as dry mounting presses, irons, thermo-fax machines, etc.
 - b) level floor
 - c) work tables
 - d) plumbing hookups for several sinks.
 6. Science laboratory/language laboratory outfitting: in cases in which lab science or language learning programs are the focus of intensive development, remodeling

may be required to allow use of new self-instructional approaches; e.g. audio-tutorial biology.

7. Etc.

As mentioned earlier, not all of the listed functions would be carried out at each site. Each university has different needs and a different base to build on. The following section will discuss each site and outline the sort of educational technology program which is proposed.

MINYA UNIVERSITY PROPOSED PROGRAM

Background

Minya University, established as a separate university only in 1975, currently consists of five faculties operational (Agriculture, Education, Arts & Human Sciences, Science, and Engineering & Technology) plus two more authorized (Medicine, Fine Arts). The latter have not been activated largely because the University has not been able to attract faculty to staff them. In fact, the question of attracting and holding full-time faculty may be the severest problem facing Minya University.

Being based in a small town (population about 100,000) and hence lacking many amenities of big-city life, notably adequate housing for faculty, Minya University has great difficulty maintaining a stable faculty. Of the current teaching staff of some 500 persons, a substantial number -- perhaps somewhere in the 50% range -- commute to Minya while simultaneously maintaining teaching positions at other Egyptian universities. In some cases faculty members actually hold two full-time positions, which, although it is contrary to regulations, is tolerated by Minya in order to retain what teaching staff they do have. In any event, it is common to find instructors spending several days a week in Minya and then departing for teaching duties at universities in Cairo, Alexandria, and other delta locales. The same is even true of top-level administrators * This problem is well understood by University officials and plans are underway to ameliorate local conditions, e.g., building additional faculty housing in Minya. But for the present the problem of the peripatetic pedagogues raises a major challenge to any attempts at staff development and instructional improvement.

On the other hand, Minya offers the prospect of better teaching/learning facilities than the other sites surveyed. The existing classrooms are similar in design to those in Cairo and Alexandria but seemed

*In fairness it must be pointed out that the quality of effort expended by the itinerants may far outpace the quantity of time spent at Minya. Being away from family and big city distractions, faculty tend to spend long hours in their offices working on teaching plans, research, and discussion with colleagues.

to be uniformly better maintained than the latter. They at least had minimally functional chalkboards and lacked the layer upon layer of political posters which seem to cover virtually every surface in Cairo classrooms. But like the others, the Minya classrooms generally lacked window glass, light control, electrical power, adequate acoustical control and other conditions needed for effective use of audiovisual media. There is immediate prospect for improvement of facilities, however. A new campus is being constructed in the suburbs; the faculties of Science, and Education plus the central administrative offices are slated to occupy new quarters there before the end of 1978; other faculties will later move in to form a centralized American-style campus.

In addition to the transience of the faculty, the major obstacle to improved instruction at Minya is the rapidly growing student enrollment coupled with a faculty remaining nearly constant in numbers. This, of course, is the problem shared with all the other Egyptian universities.

Rationale

The prospects for improvement in the quality of instruction are aided at Minya by several factors. The chief among these is the dynamic leadership of Dr. Abdel Moneim Shawky, Dean of the Faculty of Arts & Human Sciences. In our conversations Dean Shawky provided much evidence of the sincerity of his concern for better teaching. He has worked with his faculty members on a one-to-one basis to shore up the constantly threatened momentum for improvement. Without constant oversight there is a continuing temptation for instructors to short-change their Minya duties to concentrate on their work closer to home -- in most cases, Cairo. But Shawky seems to be capable of inspiring and motivating others through the use of incentives tailored to each individual case. In one instance he might offer travel abroad; in another he might appeal to the person's achievement motivation or desire to display leadership. In any event, he is eager to support any efforts which will assist in this process of promoting better teaching. He himself is an invaluable resource for any project which would aim at instructional development.

Another advantage of the Minya site is the existence of a Faculty of Education. It includes a department of teaching methodology and even some indigenous expertise in educational technology, in the person

of Dr. Mohamed Nasr. Dr. Nasr recently completed his Ph. D. at the University of Glasgow, conducting a curriculum development project related to Science Education. His thesis entailed the development and testing of four prototype lessons in various areas of secondary school science (e.g. Water Pollution and Nutrition). His materials included a range of creative products such as simulation games, multimedia presentations (slide-tapes), and small group activities. His proven abilities as an instructional developer would be another outstanding resource to be tied into any instructional development program. Dr. Nasr also currently supervises a modest audiovisual equipment operation laboratory for teacher trainees, which is also offered to new faculty members as part of their compulsory orientation.

The University does have a small complement of centrally shared audiovisual equipment and some video recording equipment in addition to the Faculty of Education laboratory mentioned above.

Proposed Program Elements

The educational technology component at Minya would feature a full-service ID Center serving all the Faculties located within the new central campus. Major elements would include:

- 1) Data gathering and storage
- 2) Faculty development activities
- 3) Consulting services
- 4) Audiovisual materials utilization
- 5) Dissemination of information
- 6) Renovation of facilities: this element might be kept to minor proportions if all related facilities are located at the new campus and if they are integrated in advance into the ongoing building plans.

AIN SHAMS UNIVERSITY PROPOSED PROGRAM

Background

Ain Shams University, established in 1950 in Cairo, is the second largest university in the Egyptian system. It comprises ten faculties: Agriculture, Arts, Commerce, Education, Engineering, Girls College, Law, Medicine, Science, and Middle East Research. Its student body in 1975-76 totaled over 76,000; of these about 60,000 were listed as "regular" students. The teaching staff was composed of 1320 faculty members and 1895 lecturers and readers, for a total of 3215 staff members. Enrollment continues to grow at a rate of somewhere around 10% per year.

Rapidly growing enrollments in the face of fixed facilities and faculty numbers creates a problem all too familiar in the universities of Egypt. At present Ain Shams, like its sister institutions, is "treading water," trying to cope with the problem of numbers by continually increasing the average class size. Currently, for instance, in the Faculty of Education there is a reported enrollment of over 13,000 students and a faculty of 250 -- yielding a student/professor ratio of 52:1. Classes range in size from an upper limit of about 300 down to the smallest class -- of about 50 -- in "discussion" classes.

Rationale

The Faculty of Education appears to be a promising site for trial of new approaches to teaching which offer some hope of breaking out of the vicious circle of large numbers/lecture method/rote learning. A number of factors contribute to selection of the Faculty of Education as a site for experimentation:

- 1) it is the largest and oldest Education Faculty in Egypt and in the Arab World at large.
- 2) within it are eleven departments, of which five are concerned with Education subjects and six with the other major branches of learning encompassing the total range of Arts & Sciences -- Humanities, Linguistics, Mathematics, Biology, Physics, and Chemistry. Thus it offers a broad cross-section of curriculum areas to be experimented with.

- 3) it offers programs at all degree levels, from Bachelors to Doctorate
- 4) its new Dean, Dr. Abdel-Salam Ghaffar, is energetic, eager for innovation, and determined for his Faculty of Education to play a leadership role in educational reform in Egypt. A number of other professors have shown independent initiative in pursuing innovative research and development projects. There appears to be a relatively fertile climate for change in this Faculty.
- 5) there is within this Faculty a "Center for Developing English Language Teaching" -- a joint venture with UCLA, staffed with a number of American linguistics teachers/developers. Dr. Judith Gary and her husband, Mr Norman Gary, have solid professional competencies in instructional development/educational technology and have already developed and tested a number of programmed self-teaching units in English Language learning. Their competencies and their experience within the institution comprise an invaluable resource to be tapped by any future instructional development project.

The interest of Dean Ghaffar and some of his department heads is indicated by their preparation of a proposal for an instructional research & development project as one immediate outcome of an exploratory discussion with the Dean. This proposal suggests the selection of the Department of Biology as the site for an initial investigation of the instructional problems and needs of the Faculty as a whole. It proposes a one-year effort at needs analysis and cataloging of the resources and constraints existing in this one area -- with the idea that many of the findings could be generalized more broadly. The proposed principal investigators, Dr. Samir Beltagy (Biology) and Dr. Sayed El-gayyar (Philosophy of Education) appear to be interested in innovation and willing to invest effort in this area.

Another factor related to the desirability of Ain Shams Faculty of Education as a pilot program site is the existence of a major audiovisual center directly adjacent to their campus. The Audiovisual General Department -- or Audiovisual Center -- an agency of the Ministry of Education, operates to provide a wide range of custom-made audiovisual

materials to the public schools of Egypt (for example, models, charts, realia, photographs, rental films, radio broadcasts, and television productions). As it happens, this Center was established some twenty years ago with U. S. assistance ("Point Four" Program).

At the present time, the Audiovisual Center is not affiliated with Ain Shams University, but if an educational technology program were undertaken at Ain Shams, it would be highly desirable to explore some mutual relationship with the Audiovisual Center. The Center could be a significant resource for the production of materials needed to support the Ain Shams program; it would obviate the need to duplicate these facilities and personnel at the University.

Proposed Program Elements

What is recommended for Ain Shams is a pilot program within the Faculty of Education, keying initially on the Department of Biology. A thorough job of course development in this one curriculum area could serve as an exemplar for faculty in other areas. Biology offers excellent opportunities to demonstrate innovative instructional approaches in all the major domains -- cognitive, affective, and psychomotor. In the U. S. some of the most effective and most imitated self-instructional approaches were modeled on the Audio-Tutorial Method developed in Biology at Purdue University. There is good likelihood of finding exportable models which could be adapted readily to the Ain Shams situation.

The Ain Shams project would also be able to support the UCLA English Language program as one of its sub-projects. Most of the difficult conceptual work has already been done by Gary and Gary; at this point they primarily need material and equipment support, which could easily be provided from the pool which would be established for this project as a whole. Their program, too, shows excellent prospects for success and would provide another exemplar of innovative self-instructional methods which might stimulate other faculty in other curriculum areas.

In summary, then, the Ain Shams program would, like Minya, provide a full-service ID Center. . .the difference being its focus on one Faculty. Major elements would include:

- 1) Data gathering and storage
- 2) Faculty development activities
- 3) Consulting services
- 4) Audiovisual materials utilization
- 5) Dissemination of information
- 6) Renovation of facilities: Ain Shams would require the largest-scale renovation of all the programs proposed. Its buildings are about thirty years old and quite deteriorated. Virtually all of the types of renovation listed above on pages 8-9 would be desirable.

A final, and very important, aspect of the pilot program at Ain Shams is the possibility of eventually establishing an academic department of Educational Technology within this Faculty. Participants who are sent abroad for specialist training in Educational Technology with the purpose of serving as staff of the Instructional Development Center may also have or may acquire qualifications to serve as teaching faculty. As the demand grows for persons with expertise in this area, Ain Shams could begin to offer courses and, later, degree programs in Educational Technology. Given its eminence in the field of Education, Ain Shams would appear to be a ready-made, credible source for future educational Technologists.

The hope, then, is that Ain Shams eventually would take over the "technical assistance" role which presumably will be played by an American university in the beginning phases of this project.

CAIRO UNIVERSITY PROPOSED PROGRAM

Background

Cairo University, the largest in Egypt, also plays the role of "the" national university of the country. It is looked to for leadership throughout the higher education ranks. Its importance is underlined by its sheer size; the official statistics for 1975-76 showed an enrollment of about 87,000 -- comprising nearly 57% of the total university population of the nation. Current estimates suggest a 1977-78 enrollment of somewhere around 100,000.* Cairo University, being located in the capital, also acts as a magnet for the nation's academics. Many of the University's full-time faculty of some 2000 persons also hold positions in other Egyptian universities. There is a distinct pattern of residing in Cairo and commuting to other part-time or even full-time teaching positions elsewhere, such as Minya or Alexandria.

Its size appears to constitute Cairo University's greatest challenge in attempting to offer a high quality educational experience for its students. A student/faculty ratio of somewhere around 50:1 dictates large classes, oral lectures, mass examinations, and little opportunity for individualized instruction or practical experience for students. These conditions are compounded by a physical plant which is overtaxed by the burden of such numbers of students. Classrooms and lecture halls are generally ill-equipped for anything but straight lectures (lacking capability for small-group discussion, laboratory work, or audiovisual presentations), and even these minimal facilities are deteriorating due to heavy use and insufficient maintenance.

Rationale

There are several reasons why a pilot project in instructional improvement ought to be attempted at Cairo University in spite of the considerable barriers to success:

*Whether the enrollment trend is actually upward or downward seems to be debatable. Some observers claim that Cairo University's enrollment has decreased in recent years with the growth of the regional universities outside Cairo.

- 1) Cairo University is a "lighthouse" for the Egyptian higher education system. Examples set here are more likely to be taken seriously at other institutions.
- 2) Because of its sheer size, any successes achieved here will impact on a large proportion of the total Egyptian student population.
- 3) As will be discussed in greater detail in the following section, a "wedge" already exists in the form of a "Center for the Preparation of University Teachers." This pre-service training function could serve as the point of entry for support of improvement in the instructional system.

Proposed Program Elements

Unlike the programs proposed for Minya and Ain Shams, the educational technology component at Cairo would not attempt to establish a full-service Instructional Development Center. Instead, it would attempt to support, improve, and expand the already initiated activities of the Center for Preparation of University Teachers.

The Center for Preparation of University Teachers began in 1976 as a response to a new regulation requiring training in teaching methodology for new university faculty.* In 1977 this Center took the form of a series of lectures given at three-month intervals, totaling 21 days of instructional time. Many of the lectures were given by specialists from the Faculty of Education of Ain Shams University. The collected lectures were published in softcover book form by Cairo University under the title of Principles of University Teaching. Sample topics include:

- "Education and Behavior Modification"
- "Behavioral Characteristics of University Students"
- "Psychology of Scholastic Learning"
- "The Meaning of Educational Aids"
- "Educational Aids: Principles of Their Use"
- "Using References and Libraries".

*Further inquiry is needed to determine whether this is a national law, whether it applies to all new faculty, whether it applies to all of the universities, and just what it does require.

This pre-service training program was under the direction of Dr. Hassan Hamdy, Vice-President for Graduate Studies and Research. He reports that the program was suspended following the 1977 lecture series; this decision was based on feedback from participants. Apparently many participants felt that mere information in the form of lectures was not of significant assistance to them as they pursued their teaching responsibilities. The Center is now directed by a committee which includes Hamdy, several deans, education specialists, and the Dean of the Faculty of Education at Fayyum as chairman. The curriculum of the pre-service program is being revised and new activities are contemplated for mid-1978. Presumably, greater emphasis will be placed on demonstration of teaching practices and on practical applications of theory.

What is suggested here is general assistance to the Center for Preparation of University Teachers. Potential activities would include:

- 1) Planning assistance -- technical assistance regarding goals of the Center and developing the curriculum and methods of the pre-service training program.
- 2) Implementation assistance -- help in conducting the faculty workshops, providing the most relevant and practical experience possible.
- 3) Follow-up assistance -- after any training session has ended it is critical to offer supporting services to maintain and reward any new practices which are stimulated by the training session. This might take the form of consulting services, provision of further information and training, and an "incentive" program such as is discussed elsewhere in this report.

As with the other programs being proposed in this report, this program would be a pilot effort, assessing whether this "wedge" -- faculty training -- can be an effective one for making inroads in the general pattern of teaching/learning practices. The special significance of this particular effort is its potential for immediate impact University-wide. The training sessions affect staff members from all Faculties of the University. If effectively implemented, such a program could plant seeds of more innovative teaching all across the University. This would make more feasible some future expansion toward a larger-scale Instructional Development Center.

ALEXANDRIA UNIVERSITY PROPOSED PROGRAM

Background

Alexandria University is the largest Egyptian university outside Cairo; founded in 1942, it comprises eleven Faculties and institutes. In 1975-76 it had a total enrollment of over 64,000 students, with a teaching staff (excluding graduate assistants) of 1185; this yields a student/faculty ratio of around 50:1, similar to the other universities in the system. The teaching/learning problems here are, therefore, similar to those discussed in earlier sections of this report.

Rationale

At Alexandria University, in the Faculty of Medicine, there exists a resource which is rather unique among the Egyptian universities, . . . it is a well-equipped and well-staffed Learning Resources Center (LRC). This LRC, funded by Project Hope, offers the Medical faculty a wide range of instructional media services, among them being:

- medical photography and medical illustration services, capable of providing visual material custom-made to fit the instructor's specifications;
- a sizeable complement of audiovisual presentation equipment, including film, slide, overhead, and opaque projectors and tape recorders;
- a library of audiovisual materials on medical education;
- a staff which includes two American audiovisual specialists.

At the present time this facility is confined to the Faculty of Medicine. It would be the goal of this proposed program to expand the LRC concept to serve other Faculties.

Proposed Program Elements

The purpose of the proposed educational technology component at Alexandria would be to offer a pilot model of a learning resource center approach to the improvement of university teaching. For some instructors, under certain circumstances, the mere access to a pool of enriching materials can serve to stimulate their branching out into more creative modes of instruction. At any rate, such access is certainly a necessary (if not always sufficient) condition for adoption of materials-based instruction.

At the present time the American staff of the LRC (George C. Goodale and Jeff Beaudry) seem to be eager to expand their Center's services to a wider audience. They have held an audiovisual workshop for the Pharmacy faculty and are planning dissemination activities for the Education faculty. Assuming that the governing authorities of the Faculty of Medicine are willing to share the services of an expanded LRC (and this assumption has not at all been tested), the Alexandria situation would allow experimentation with another approach to instructional improvement -- the LRC concept

Possible elements of the Alexandria program might include:

- 1) Expansion of the staff, . . .to allow dissemination, demonstration, and follow-up consulting services to other faculties;
- 2) Expansion of audiovisual hardware pool;
- 3) Future expansion of the software collection, after instructional needs had been identified and interest stimulated;
- 4) Renovation of facilities -- refurbishing and outfitting of selected classrooms to allow effective use of audiovisual materials.

In summary, at Alexandria the new services to be offered would be parallel to those envisioned for the other proposed programs, i.e., faculty development, consulting services, audiovisual materials utilization, dissemination of information, and renovation of facilities. The major difference is that the program would be built on an existing base and the rationale of the effort would be structured around "learning resources" -- that is, using audiovisual materials as the "wedge" to be employed in making interventions in the current teaching/learning pattern. This is the general approach which developed historically in the U. S. In a number of institutions the media-based LRC has now evolved into a full-service Instructional Development Center concept. Such an evolution is not guaranteed, but at least it is possible.

SUGGESTED PROCEDURES FOR A. I. D.

Need for On-Site Evaluation

The four proposed programs in applying educational technology to the improvement of instruction in the universities of Egypt are conceived of as pilot programs. They offer a variety of approaches within a variety of institutional settings. The ultimate hope is to discover one or more approaches which appear to be expandable to a wider scale within each target university and exportable ultimately to the other universities of Egypt.

Key to the idea of using these initial sites as true prototypes is the concept of evaluation. In fact, the whole rationale of a "systems approach" to education revolves around a commitment to continuous evaluation. First, needs must be identified; then objectives specified. This accomplished, tentative solutions must be developed. Evaluation, then, consists in comparing the outcomes of the system with the objectives which were established. If evaluation is continuous, shortcomings can be identified early and steps taken to correct them. And only with rigorous evaluation can decisions be made as to which prototypes hold promise for making a significant impact on major instructional problems.

The centrality of this evaluation function implies a careful, objective documentation of the events and outcomes of the proposed pilot programs. This, in turn, implies the need for some "external" agency to be present at each site.

Need for Instructional Development Expertise

Even a cursory examination of the Egyptian university scene quickly reveals a lack of internal expertise in the realm of instructional development (as it is defined in this report). There is little apparent use of technological aids to instruction; there is even less evidence of any application of a systematic approach to instructional problem-solving. None of the universities has a training program for producing instructional development specialists, although there are a few individuals who have themselves received such training abroad.

So, if Instructional Development Centers are to be implemented, outside assistance will be required. It is imperative that the external assistance agency itself have first-hand experience setting up and operating instructional development centers. Such centers have evolved in American universities only within the past ten to fifteen years, and there are rather few institutions which can claim large-scale, successful implementation of such services. Given the even larger barriers faced in Egypt, it will require a high level of practical and theoretical expertise to have much hope of success.

Need for Training Capability

If the longer range goal is to extend the Instructional Development concept beyond the pilot programs, it will be necessary to begin right away to train Egyptian personnel in the craft of ID. The pilot ID centers would be staffed initially by experienced American personnel, but it would be a major goal to replace these with qualified Egyptians as expeditiously as possible. Thus another criterion of the outside assistance agency would be the capability of offering relevant high level training in instructional development along the lines being pursued in the overall project.

University Contract

The requirements spelled out above -- the need for on-site evaluation, the need for ID expertise, and the need for training capability -- all point to the desirability of AID contracting with an American university or group of universities for implementation of these proposed programs.

Certain universities immediately come to mind in view of their highly visible prominence in one or more of the areas mentioned as criteria:

- 1) Syracuse University -- a large university with a highly developed ID agency, experienced in curricular applications across the whole university spectrum; also has one of the half dozen most highly regarded doctoral programs in educational technology, with special emphasis in the areas of evaluation and ID.

- 2) Indiana University -- a large state university, similar in scale to the Egyptian universities; it has centralized ID efforts in a "Dean for Learning Resources," under whom are the university libraries, AV center, and ID agency. Its ID center, although smaller than Syracuse's, has made successful, major impact on instructional improvement in all areas of the curriculum, including at campuses beyond the central one. Its graduate programs in Instructional Systems Technology include a major emphasis in ID; it has the largest faculty and probably best known program in this field in the country. Its Audio-Visual Center is similarly prominent.
- 3) Michigan State University -- a large state university, similar in scale to the Egyptian universities; it has centralized instructional improvement in a "Vice-Provost for Educational Development," tying together audiovisual, television, and ID services. MSU also has compiled a considerable history of achievement in applying ID to all areas of the curriculum, documented in a book, Commitment to Excellence. Its academic program in ID is not as extensive as those of Syracuse and Indiana.

Other universities, such as University of Southern California, Wayne State University (Michigan), Governors State University (Illinois), Brigham Young University, and Utah State University also meet one or more of the criteria stated, especially in having some institutional experience in implementing ambitious instructional development programs. There are possibly a dozen other institutions which offer real strength in one or more of the required areas.

It is possibly of some interest to AID to note that a consortium exists which encompasses Syracuse, Indiana, and Michigan State, plus Southern California and U. S. International University (California). This consortium, the University Consortium for Instructional Development and Technology (UCIDT), has been in existence for some eight years as an informal mechanism for liaison among these major graduate programs. It has allowed collaboration on several projects, including instructional development and training for the Government of Iran. The UCIDT is

headquartered at the University of Southern California, Department of Instructional Technology, Los Angeles.*

General Scope of Work

The eventual contractor(s) for the educational technology component would be called upon to perform three general tasks:

- A. Set up ID Centers of the types described at each of the four target institutions; this would probably entail one central office at one of the universities (probably in Cairo) and small staffs on-site at each of the other three universities. Work would include needs analysis, cooperative goal setting, consulting with faculty, conducting workshops, selecting needed hardware and software, operating materials production services, and documenting activities.
- B. Evaluation -- both formative and summative; the formative evaluation would gather day-to-day feedback on progress of each activity; the summative evaluation would be carried out by a third party, attempting to gauge the success and exportability of each given pilot program.
- C. Conduct participant training of Egyptian personnel, both on-site and in the U. S. In-service training will be conducted for the benefit of local personnel who require only minor additional education. Others will be selected for short-term and full degree programs of study in the U. S. The latter would involve specialized study in instructional development and design and the various aspects of educational technology (e.g. audio-visual production/utilization, instructional television, programmed instruction, etc.).

Time Frame

The type of work advocated in this report inherently requires a long-range outlook. There is very little likelihood that dramatic impacts will be achieved in the first year or even two of an instructional development project. It is especially important that sufficient attention be paid to analyzing needs and identifying realistic targets at the outset. This activity would probably occupy most of the first

*See Annex D for a description of UCIDT's capabilities.

year, particularly since the American staff members would need to become acclimated to the Egyptian culture and Egyptian university milieu. Developing empathy with the clients is vital to any human change process -- which is what "faculty development" entails.

Second, time must be allowed for the Egyptian trainees to be selected, trained, and returned to relevant positions in Egypt. The turnaround time for some may be measured in months, but others being groomed for leadership positions in instructional development may become involved in doctoral studies requiring two, three, or more years to complete.

In sum, unless a stable commitment for at least about three years can be assured, it would be better not to undertake the effort.

ANNEX A

"Incentives for Faculty Participation"

The Present Structure of Incentives

A key to involving faculty in instructional change (i.e., a change in their own professional behavior) is finding a way to make it worth their while to invest time and energy in examining their own performance and participating in the design of alternative materials and procedures.

- ASSUMPTION #1: At present there is very little surplus faculty energy available to be devoted to such tasks. Most instructors work at several teaching jobs, all of which are poorly paid.

CONSEQUENCE: Some new intervention is needed to motivate interest in diverting time and energy from existing allocations.

- ASSUMPTION #2: The principle of faculty autonomy is deeply rooted enough that administrative fiat would be ineffective in the long run as a means of motivating action; the support of the university authorities, of course, is essential, but is not in itself sufficient.

CONSEQUENCE: Voluntary participation by faculty would be a more effective means of bringing about change.

- ASSUMPTION #3: There is a consensus among everyone in the university community that the current instructional methods serve students rather poorly.

CONSEQUENCE: Awareness that a problem exists is the first precondition necessary for any change to take place.

- ASSUMPTION #4: Appeals based simply on the welfare of students would be unlikely to motivate faculty to undertake major instructional innovation. This assumption is based on psychological principles such as Maslow's Needs Hierarchy which suggest that the faculty would not be highly moved to satisfy students' needs until their own needs (e.g. for financial and psychological security) are met.

CONSEQUENCE: Any incentives offered within this project would best be addressed to the immediate felt needs of the target faculty members.

A "Menu" of Incentives

To develop a comprehensive "menu" of appropriate incentives will require closer study of the specific needs and interests of Egyptian university instructors. In all likelihood, there will turn out to be individual differences in needs and interests, necessitating a variety of reinforcers to be prescribed on a case-by-case basis. The listing which follows is merely an enumeration of some obvious possibilities which immediately suggest themselves.

- 1) Financial Rewards
 - A. Consulting fees -- small fees paid for active participation in meetings, e.g. to analyze departmental needs or to discuss possible solutions.
 - B. Research grants -- grants in addition to regular salary which carry out basic analysis of learning problems of their students, curriculum shortcomings, new materials which would aid their teaching, etc. This is not research per se, but a kind of needs and resources analysis.
 - C. Development grants -- payments beyond regular salary for work related to the creation and testing of new instructional materials or procedures.
Development grants would also make funds available for the acquisition or production of supplies, materials, and equipment needed to implement the new approach.
 - D. Author grants -- direct payments for writing projects, such as adaptation of textbooks, preparation of student workbooks, etc.
 - E. Translation grants -- payments for translation of instructional material from one language to another.
 - F. "Demonstration Professor" salary supplements -- bonuses added to regular salary for instructors whose classrooms are used as "demonstration classes." Faculty who have developed successful innovations could be encouraged to continue them by being paid as "demonstration professors."
 - G. Vacation time grants -- continue full salary into periods which normally are not salaried in order to provide time to undertake "research and/or development."

- 2) Professional Development Incentives
 - A. Travel-study -- instructors who are committed to carrying out ID projects would be eligible for trips abroad to observe exemplary instructional models and/or to undertake formal study related to teaching methodology in their area.
Travel grants would also be available for attending professional association meetings related to development projects.
 - B. Promotion criteria -- university authorities should consider allowing successful ID work to be submitted as a promotion criterion in the same way research and professional publications are counted.
 - C. Publication -- ID clients should be aided in writing up descriptions of their ID work (e.g. needs analysis findings, descriptions of their innovations, evaluation results, etc.) and placing these reports in professional journals.
Further down the road, it might be feasible to consider publishing an ID journal as a publishing outlet for faculty and as a means of disseminating practices developed at Egyptian institutions.
 - D. Released time -- for those whose financial situation allows it, time to get involved in development might be secured by "buying" their time from the University; their salary would remain the same but they would divert some percentage of their time to ID activities instead of classroom teaching. This might be half-time for three semesters, full-time for a semester, etc.
- 3) Work-Related Incentives
 - A. Lightened work load -- presumably, the outcome of some ID projects would be new instructional systems which would substitute materials-based activities for previous lecture activities, thus possibly freeing the instructor from some activity considered by him to be onerous.
 - B. Altered assignment -- some ID projects might lead to some form of team teaching in which individuals might be able to concentrate more of their efforts in activities they prefer to other activities.

- C. Improved physical conditions -- certain spaces might be renovated to provide more attractive and effective learning environments. Such spaces might be reserved for classes involved in ID projects
- D. Greater job satisfaction -- instructors with a "professional" orientation (having superceded lower level needs) would presumably derive personal gratification from improved learner performance and rationalized teaching procedures.

Ladder Approach to Incentives

It is anticipated that among the faculty of any given university, a wide range of individual differences will exist regarding what incentives will have motivational power with whom at that time. For this reason a "menu" of reinforcers has been suggested. It will require great sensitivity on the part of the change agent to select the reinforcer best matched to the given occasion. Only with experience -- trial-and-error -- will there emerge a clear sense of rank order among the possibilities and a methodology for making client/incentive matchings.

As a general strategy, however, the change agent might well adopt a somewhat structured approach to linking client actions with reinforcers. This might be seen as a sort of ladder approach: for each unit of instructional development work completed, he would become eligible for a higher level reinforcer. For example, the use of certain renovated facilities might be reserved for those who had made some sort of initial commitment to carry out an ID project. Development grants might be made contingent on completing a "research" project (analyzing instructional problems or needs). Travel-study abroad might be made contingent on successfully completing an analysis of needs and an extensive elaboration of performance objectives. . . and so on.

It might or might not be desirable to make this "ladder" visible to prospective clients, perhaps this would best be done in terms of a statement of what criteria are required for eligibility for each type of grant. In any event, the "ladder" approach would approximate a system of contingency contracting, which has been found to be a powerful method of shaping behavior.

ANNEX B

"A Five-Centimeter Library on Instructional Development"

The following are selected references related to the planning, design, and evaluation of instruction. All except number 5 are written for teachers and would be useful as introductory readings for Egyptian faculty members who are beginning to consider a more systematic approach to instruction. All are paperbacks.

The titles are ranked in order of their probable interest to the average instructor.

- 1) Mager, Robert F. Preparing Instructional Objectives.
Second edition. Belmont, CA: Fearon, 1975. \$4.25.
- 2) Kemp, Jerrold. Instructional Design: A Plan for Unit and Course Development. Second edition. Belmont, CA: Fearon, 1977. \$4.25.
- 3) Russell, James D. Modular Instruction. Minneapolis: Burgess, 1974. \$4.95.
- 4) Johnson, Stuart & Johnson, Rita. Toward Individualized Learning: A Developer's Guide to Self-Instruction. Reading, MA: Addison-Wesley, 1975. \$9.95.
- 5) Diamond, Robert, et al. (eds.). Instructional Development for Individualized Learning in Higher Education. Englewood Cliffs, NJ: Educational Technology Publications, 1975. \$10.95.
- 6) Mager, Robert F. Measuring Instructional Intent. Belmont, CA: Fearon, 1973. \$4.25.

ANNEX C

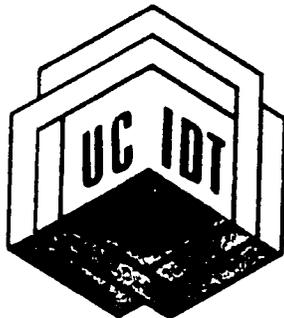
"Pre-Proposal Research Needed"

The following are topics on which some brief further study should be done prior to developing a Project Proposal on University Instructional Materials:

- 1) What is the actual legal requirement concerning pre-service training of university instructors? Dr. Hassan Hamdy has stated that such a requirement exists; its intent and coverage should be carefully studied.
- 2) Is there consensus at the higher administrative level at Alexandria University that the Learning Resource Center's services should be expanded to other faculties?
- 3) What are the actual enrollments and faculty sizes at each of the Egyptian universities? During the course of this present study the contractor received widely differing figures from different authorities.
- 4) If the Cairo University program, built around pre-service training of instructors, is to be pursued, it would be useful to examine their past efforts in this area. A major step would entail translating the lectures delivered in 1977; they are published by Cairo University in Arabic under the title, Principles of University Teaching: Lectures of the Training Sessions for Preparing the University Teacher.

"UCIDT Capability Statement"

**UNIVERSITY CONSORTIUM
FOR
INSTRUCTIONAL
DEVELOPMENT
AND
TECHNOLOGY**



WHAT IS THE CONSORTIUM?

The Consortium is made up of the Chairman and key staff members of five major departments of Instructional Development and Technology at the University of Southern California (where the National Office is located), Indiana University, Michigan State University, Syracuse University, and U.S. International University in San Diego. UCIDT was organized in 1964 when known as the National Special Media Institutes (NSMI) to provide a joint thrust in professional education in media and technology throughout the United States. *The purpose of the Consortium is to provide a level and quality of professional service in instructional development and technology which would not be possible through a single or a lesser combination of institutions in this field.* An example is the Instructional Development Institutes (IDI) which were jointly developed, tested, and conducted in hundreds of school systems during the early and mid-1970's.

This brochure briefly describes some of UCIDT's projects, products and services. Agencies interested in possible service arrangements with UCIDT may secure further information through members of the Directorate listed on the back fold.

**PROJECTS, PRODUCTS
& SERVICES**

WHAT HAS UCIDT ACCOMPLISHED?

1. *Media Institutes*

Funded initially by U.S. Office of Education (USOE) grants, UCIDT developed and conducted Special Media Institutes for university directors of teacher education institutes in the 13 academic disciplines under USOE's NDEA Title XI program. Some 600 directors received specialized media training and materials in their disciplines to apply in their own subsequent summer institutes for public school teachers of mathematics, science, geography, history, English, foreign language, reading, guidance and other subjects in the school curriculum. Between 1965 and 1969 these institutes provided training for over 20,000 teachers in advanced techniques of designing and developing instructional materials as well as in the application of instructional technology in teaching.

2. *Instructional Development Institutes (IDI)*

During the late 1960's UCIDT received a USOE grant to develop and implement a more sophisticated program of improving teaching and learning called Instructional Development. Using a systems approach and behavioral science concepts in its development, the Consortium produced a 40 hour institute for training teams of teachers, administrators, specialists and community leaders in a systematic approach to solving educational problems. Tested initially in the school systems of Detroit, Phoenix, Atlanta, and St. Paul, IDI has been continuously evaluated, refined, and modified. From 1971-74, IDI's were given in over 350 school systems in 45 states. Trained teams from teacher education agencies in 34 states assisted in the overall dissemination effort.

Although Federal funding helped bring the IDI into being and assisted in its initial dissemination, other funding — local, state, or both — supported over a third of all IDI's given prior to the expiration of UCIDT's USOE contract on June 30, 1974. Since then, the IDI program has been continued independently by the Consortium and is now in its third major revision. Another UCIDT brochure describes the new modular IDI and how to obtain it.

3. *International Training Programs*

The success of the IDI in the United States has led to numerous inquiries and expressions of interest from educators in other countries and to action programs in the Philippines and Iran.

With help from the Consortium, the Southeast Asia Interdisciplinary Development Institute (SAIDI) in Manila has adapted the IDI for use in the Philippines and other countries in Southeast Asia. Although concentrating primarily on educators, SAIDI is finding other useful IDI applications for personnel training programs in government, community development, and industry.

Through a contract with National Iranian Radio and Television (NIRT), the Consortium sent a team to Iran in 1975 to adapt the IDI to the needs of the Iranian educational system, to train teams of educational technologists to put on the Institute in various settings, and to supervise the production and translation of materials into Farsi. The project proved highly successful and IDI's are now being offered by Iranians to Iranians throughout the country.

A subsequent contract with NIRT in 1976 provided for the training of educational technologists and learning resource center directors. Most of the course development was done at Consortium institutions in the United States involving both project staff and Iranian Educational Technologists brought here for that purpose. All of the instruction totaling about 1500 hours, is being done in Iran by the U.S. and Iranian personnel who developed the courses. The curriculum is competency-based and is being adapted on the scene as necessary to accommodate Iranian needs. Following the instruction phase, evaluation and follow-up activities will extend through early 1978.

4. *Policy Seminars and Publications*

During the late 1960's the Consortium conducted a series of three seminars on the contributions of behavioral science to instructional technology. The purpose of the seminars was to bring together behavioral science experts and professional educators to examine the relation of the three basic domains of learning — cognitive, affective, and psychomotor — to instructional technology. Working papers developed by the 21 behavioral scientists involved were revised by them following the seminars and subsequently published in book form.

WHO SUPPORTS UCIDT ACTIVITIES?

Although initial support for UCIDT projects was provided through a series of USOE contracts, the activities of UCIDT programs are now totally self-supporting. This support is obtained from the conduct of institutes for school systems, state departments of education, colleges and universities, government agencies, and international agencies as well as from the sale of the developed materials and publications.

WHAT MATERIALS HAS UCIDT PRODUCED?

1. *Institute Packages* Agencies which have been qualified by UCIDT to put on IDI's are eligible to purchase the complete five-day IDI package consisting of manuals, learning exercises, simulations and games, tests and other expendable instructional materials for 50 participants. Inquiries should be addressed to

UCIDT
801 Waite Phillips Hall
University of Southern California
Los Angeles CA 90007

A new modular IDI developed in ¹⁹⁷⁶⁻⁷⁷ ~~1977~~ is now available. Further information on it is provided in a separate brochure.

2. *Individual Manuals from IDI* A number of manuals from the Instructional Development Institute have been made available for general distribution through the Technological Applications Project (TAP) at U.S. International University in San Diego. Included are such titles as *Needs Assessment* by Roger Kaufman, *Evaluation for Instructional Development*, *Application of General Systems Theory to Instructional Development*, and *Strategies and Media*.

Address inquiries to

Technological Applications Project
8660 Miramar Road, Suite M
San Diego, Ca 92126

3. *Books on Learning Domains* A series of three paperback books published by the Consortium on Contributions of the Behavioral Sciences to Instructional Technology entitled, *The Affective Domain* (1970), *The Cognitive Domain* (1972), and *The Psychomotor Domain* (1973) are available from.

Gryphon House
P O. Box 246
Mt. Rainier, MD 20822

HOW TO CONTACT UCIDT

This brochure was prepared to suggest something of the nature and variety of professional services available to educational agencies through the Consortium. Further inquiries should be addressed to the National Office at the University of Southern California or to a member of the UCIDT Directorate:

Dr. William H. Allen, Chairman
Dept. of Instructional Technology
801 D Waite Phillips Hall
University of Southern California
Los Angeles, CA 90007
National Director, UCIDT
AC 213/741-6263

Dr. Donald P. Ely
Area of Instructional Technology
120 Huntington Hall
Syracuse University
Syracuse, N.Y. 13210
AC 315/423-3640

Dr. Kent L. Gustafson
B-201 Fee Hall
Michigan State University
East Lansing, MI 48824
AC 517/353-7964

Dr. Dale Hamreus, Director
Instructional Development
U.S. International University
10455 Pomerado Road
San Diego, CA 92124
Director IDI Project, UCIDT
AC 714 271-4300

Dr. John Moldstad, Chairman
Instructional Systems and
Technology
110 Mitchell Hall
Indiana University
Bloomington, Ind. 47401
AC 812 337-1362

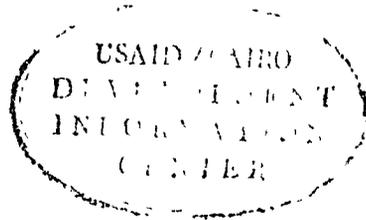
Dr. Chas F. Schuller
APT. 12-5 Islander Club
2295 Gulf of Mexico Drive
Longboat Key, Florida 33548

Executive Director, UCIDT
AC 813/383-1568

Supplementary Report

Costs of Educational Technology Component

UNIVERSITY INSTRUCTIONAL MATERIALS



by

Michael Molenda
Associate Professor
Instructional Systems Technology
Indiana University
Bloomington, Indiana 47401

May 19, 1978

At the request of Dale DeButts, AID/Cairo, I have prepared the following estimates of costs entailed in my earlier report (February 6, 1978), "Concept Paper: University Instructional Materials, Educational Technology Component."

These estimates are tentative, depending upon the nature of the project(s) finally conceived.

IMPORTANT NOTE: All equipment and materials costs are based on U.S. specifications (i.e., 120 volt, 60 Hz electrical power) and list prices for U.S. delivery as of May 1978.

SUMMARY BY PROJECT SITES

Minva University

Learning Lab (40 stations)	\$36,550
Learning Lab production support equipment	4,290
Classroom AV equipment (15 rooms)	9,825
AV production support equipment	1,050
Raw materials for teacher AV production	<u>2,000</u>
Subtotal	\$53,715

Ain Shams University

Learning Lab (40 stations)	36,550
Learning Lab production support equipment	4,290
Classroom AV equipment (15 rooms)	9,825
AV production support equipment	1,050
Raw materials for teacher AV production	2,000
UCLA project component	7,500
Biology "Audio-Tutorial" software	<u>500</u>
Subtotal	\$61,715

Alexandria University

Expand AV equipment pool	3,350
Expand AV software collection	<u>2,000</u>
Subtotal	\$ 5,350

Cairo University

No AV hardware or software anticipated	<u>0</u>
--	----------

Total \$120,780

Another major addition for Ain Shams is \$7500 to support the innovative English Language project currently being operated with the assistance of a team from UCLA. Norman Gary had specifically suggested the need for portable stereo cassette tape recorders for each instructor involved in the experimental English program. This \$7500 would allow purchase of a dozen such recorders.

Alexandria University

Audiovisual hardware and software may a higher priority role in the project proposed for Alexandria. Here the objective is simply to expand the resource pool already existing in the Medical School so that faculty members in other areas have greater access to teaching resources.

Cairo University

The instructional improvement program envisioned for Cairo would focus on strengthening the pre-service and in-service faculty orientation programs. This entails primarily personnel and planning. No specific materials or equipment are foreseen at this time.

COST BREAKDOWNS

Learning Laboratory (Minya and Ain Shams)

Slide/cassette tape viewer (e.g. Singer Caramate,
Kodak 450 Audioviewer), playback only.

50 @ \$425 \$21,250

Slide/cassette tape recorder/viewer (same as above,
plus recording capability)

10 @ \$500 5,000

Headphones for above

100 @ \$ 15 1,500

Carrel, with electrical power, 40" X 20' surface,
with side panels

40 @ \$220 8,800

Subtotal \$36,550

Learning Lab Production Support (Minya and Ain Shams)

Portable slide shooting system (camera and copy stand),
Kodak Visualmaker

5 @ \$200 1,000

Slide duplicator and 35mm camera

1 @ 1100 1,100

Cassette tape hi-speed duplicator

1 @ 900 900

Microphone mixer/preamplifier (e.g. Bogen CTF)

2 @ 275 550

Studio-type microphones, cardioid (e.g. Electro-
voice REID)

2 @ \$120 240

Miscellaneous cables and Jacks

500

Subtotal \$4,290

Producti Support for Classroom Materials (Minya and Ain Shams)

Thermal transparency maker (e.g. 3M Secretary 45)

2 @ \$525 \$1,050

Subtotal \$1,050

Classroom AV Equipment (Minya and Ain Shams)

Chalkboard, porcelain, steel-backed, 4' X 3'

15 @ \$175 2,625

Projection screen, wall-mounted, tilt capability,
60" X 60"

15 @ \$130 1,950

Overhead projector (e.g. Beseler Porta-Scribe)

15 @ \$250 3,750

Map set, roll-down

2 @ \$250 500

Science chart set, roll-down

4 @ \$250 1,000

Subtotal \$9,825

Classroom AV Materials (Commercially Produced) (Alexandria)

Overhead transparency series

6 @ \$250 1,500

2" X 2" slide sets

10 @ \$ 50 500

Subtotal \$2,000

AV Equipment Pool (Alexandria)

Overhead projector

5 @ \$250 \$1,250

Tape recorder

2 @ \$200 400

Slide projector

2 @ \$350 700

16mm film projector

1 @ \$1000 1,000

Subtotal \$3,350

English Language Equipment (Ain Shams)

Portable stereo cassette tape players, with
separate speakers (e.g. Wollemak 2522 AV)

12 @ \$615 7,380

Auxiliary equipment

- 120

Subtotal 7,500

COMMODITIES: ANNEX

H A R D W A R E

5 graphics shops	\$ 50,000
5 photo labs processing B&W and color slides	75,000
5 poster copy units	7,500
5 reproduction centers (mimeo, addressograph, xerox, multilith, etc.)	150,000
5 video portapak production	40,000
1 Buhl film to video copy unit	2,000
5 video copy units (cutting)	25,000
5 slide production units	15,000
5 tape reproduction units (master and slaves)	30,000
Spare parts 20%	
4 mobile A/V units	200,000
45 35 mm slide projectors	20,000
45 16 mm optic/magnetic dual sound-track projectors	54,000
Misc. software (video and audio cassettes, paper, film and materials) first year	150,000
Misc. software second and third year	500,000
TOTAL	\$1,318,500

NOT INCLUDED:

Furnishing costs?
Vehicles
Communication system
16 mm film production?
telecommunication system.

Graphics Equipment and Supplies for Development Information National Center:

<u>Ser. No.</u>	<u>ITEM/Description</u>	<u>ESTIMATED UNIT COST</u>	<u>QUANTITY</u>	<u>EXTENSION COST</u>
1.	Drawing table, 48" x 60"	\$ 150	3	\$ 450
2.	T-square, 48" or 54", steel	15	3	45
3.	Triangles, 30°/60°/90°			
	Small, 4 to 6"	1	6	6
	Medium, 8"	2	6	12
	Large, 10 to 12"	3	6	18
4.	Drawing set, mechanical	25	3	75
5.	French curves and protractors, assorted sizes and/or configurations	3	12	36
6.	Brushes, watercolor, sable, in assorted sizes			
	Small (Sizes 2, 4, 6, 8)	4	3 ea. size = 12	48
	Large (Sizes 10, 12, 14, 15)	5	3 ea. size = 12	60
7.	Lettering on acetate sheets, with adhesive backing, sheet size: 12" x 16". Assorted styles and sizes. ARTYPE, PRESTYPE, TACTYPE, LETRASET or equal.	2.50	150	375
8.	Tones and patterns, on acetate sheets with adhesive backing: 12" x 16". Assorted patterns (lines, dots, cross-hatch, wavy lines, circles, solid squares, etc.). ARTYPE, ZIP-A-TONE, TACTYPE or equal.	2.50	100	250
9.	Light Box (tracing box -- glass top, lighted with fluorescent or incandescent lamps), 24" x 36" x 4", metal case, with cord and switch	50	1	50
10.	Colors, tempera or acrylic, in tube or jar, primary and secondary colors, assorted. 2 oz. jars, each.	1.50	100	150
11.	Crayons, pastel, assorted (for sketch work), set of 24 sticks	8	2	16

(Continuation: Graphic Equipment and Supplies for Dev. Inf. National Center)

<u>Ser. No.</u>	<u>ITEM/Description</u>	<u>ESTIMATED UNIT COST</u>	<u>QUANTITY</u>	<u>EXTENSION COST</u>
12.	Fixatif, can (for pastel and charcoal) aerosol spray, or, if liquid, mouth sprayer as well	\$ 3	4	\$ 12
13.	Illustration Board, 20" x 30" sheet, matte finish, ("Government board" or equal)	3	100	300
	Same - 30" x 40 sheet	6	50	300
14.	Rubber cement, can, pint (Type I)	1	24	24
15.	Rubber cement jar dispenser, with brush	6	6	36
16.	Cellulose acetate sheets, thin, medium and thick. 24" x 36" sheets or roll equivalent	2	40	80
17.	Solid color paper sheets, adhesive or non-adhesive backing, 24" x 36" sheets color assortment. COLORVUE or similar.	2	100 (in assorted tints and shades)	200
			Total	\$2,543

Graphics Equipment and Supplies for Development Information Center:

<u>Ser. No.</u>	<u>ITEM/ Description</u>	<u>ESTIMATED UNIT COST</u>	<u>QUANTITY</u>	<u>EXTENSION COST</u>
1.	Drawing table, 48" x 60"	\$ 150	1	\$ 150
2.	T-square, 48" or 54", steel	15	2	30
3.	Drawing Board, wooden, with metal side edge, 36" x 48"	25	2	50
4.	Drawing set, mechanical	25	1	25
5.	Triangles, 30°/60°/90°;45°/45°			
	Small, 4 to 6"	1	4	4
	Medium, 8"	2	4	8
	Large, 10" to 12"	3	4	12
6.	French curves and protractors, assorted sizes and configurations	3	6	18
7.	Brushes, watercolor, sable, in assorted sizes			
	Small (Sizes 2, 4, 6, 8)	4	2 ea. size = 8	32
	Large (Sizes 10, 12, 14, 15)	5	2 ea. size = 8	3
8.	Lettering on acetate sheets, with adhesive backing, sheet size: 12" x 16", assorted sizes and styles. ARTYPE, PP"STYPE, TACTYPE, LETRASET or equal	2.50	60	150
9.	Tones and patterns, on acetate sheets with adhesive backing, 12" x 16" sheets. ARTYPE, TACTYPE, LETRASET, ZIP-A-TONE or equal.	2.50	50	125
10.	Same as Items 10 through 17 of NATIONAL CENTER list, except quantities of all those items may be reduced by 50%			

(Continuation: Graphics Equipment & Supplies for 1 Dev. Information Center)

<u>Ser. No.</u>	<u>ITEM/Description</u>	<u>ESTIMATED UNIT COST</u>	<u>QUANTITY</u>	<u>EXTENSION COST</u>
	Item 10	\$		\$ 75
	" 11			8
	" 12			6
	" 13			150
	" 14			12
	" 15			18
	" 16			40
	" 17			100
				<hr/>
				\$1,014

SUMMARY:

Cost of items for Center (National)	\$2,543
Costs of items for Regional Centers \$1,014 each =	4,064
	<hr/>
	\$6,607