

Aspects of Educational Technology Volume XII

Educational Technology in a Changing World

*Edited for the Association for Programmed Learning
and Educational Technology by*
David Brook and Philip Race

General Editor:
R E B Budgett *Department of Teaching Media,
University of Southampton*

ISBN: 0 85038 1371



Kogan Page

Aspects of Educational Technology XII: Educational Technology in a Changing World

Edited by David Brook and Philip Race

Proceedings of the twelfth annual conference of APLET (the Association for Programmed Learning and Educational Technology) held at the Polytechnic of Wales, Pontypridd, in April 1978.

The keynote of the conference being one of change, three particularly significant changes were singled out to be the underlying theme for discussion: the decline in the birth rate and the likely consequence of teaching uneconomic small groups; structural unemployment and the attendant requirements for flexible training and retraining arrangements; finally the 'revolution' of micro electronics and its consequences.

The papers presented at the conference were organised into parallel sessions under the following headings:

- Educational Technology & Developing Countries
- Propagating Educational Technology — 'Training the Trainers'
- Commercial and Industrial Applications
- 'Ways and Means' — The Instructional Media
- Applications in Science Education
- Applications in Medical and Paramedical Education
- The Computer and Educational Technology
- Learning and Perception
- Resourcing Educational Technology
- Additional Contributions and Delegates' Forum Review
- Workshop Sessions

The book also includes a Keyword Index and an Author Index.

41. Applications of Educational Technology for Community Health Workers in Developing Countries

A. C. L. Zelmer and A. E. Zelmer, *International Communications Institute, Edmonton, Canada*

Abstract: The paper describes the system constraints on developing training materials in South East Asia and the Canadian Arctic. Five typical methods of design and production are outlined, and recommendations given for producing materials. Design with and for users, simplicity and visualization are stressed, based on field experiences.

The authors are adult educators who have been involved in health education activities in both Canada and South East Asia, Dr (Mrs) Amy E. Zelmer was a public health nurse in rural Canada, a health educator for the Province of Alberta, and has worked as a consultant to the Community Health Programme in the Arctic. More recently she was a consultant in health education with the Regional Office of the World Health Organization in New Delhi. Mr Zelmer's field is the production and use of low-cost media. In addition to working with the federal Ministry of Health and Welfare in the Canadian Arctic he has served as a consultant to government and non-government health and family planning projects in India and Sri Lanka, primarily under the auspices of UNESCO and UNICEF.

Although the authors of this paper have been employed by agencies of the United Nations, the opinions expressed in it are personal and do not necessarily coincide with the views officially held by the UN or its agencies.

Introduction

To a Canadian, used to an abundance of media resources, it is a sobering experience to work in an educational programme in Asia. Resources such as projection bulbs which are taken for granted in Southern Canada were a small problem in the Arctic — it was merely necessary to budget a year in advance and remember to place the order. In India bulbs were available but often cost as much as a month's salary to purchase. In Sri Lanka, unless the bulbs were supplied by an international agency, you might wait forever to obtain 'currency control' permission to place an order, and another year for the bulbs to arrive. Obviously under these circumstances it was necessary to explore other resources, basically the use of local materials for communication support materials. This paper will look at some of the developments that we have observed both in Northern Canada and South East Asia.

First, let us look at the Canadian Arctic where health services are the responsibility of the federal government. Health personnel are almost all white; often, however, they are non-Canadians. They almost always have very different cultural perceptions of their role in the health services than do the indigenous Indians and Eskimos. In the conflict that follows the native peoples are mainly the losers. Since they do not understand, they reject both the medical services and the personnel involved.

To counter this rejection the government began a programme of community

health workers, recruited jointly by the village councils and the local health personnel. The community health workers received a six-week training course which included first-aid, preventative health measures, basic community organization techniques, and the preparation and use of basic audiovisual materials. The audiovisual portion of the training included the use of projection equipment, half inch television recorders, tape recorders, local production of slide sets, posters, puppets and other simple visual aids. Each worker was supplied with a basic kit of materials: an Instamatic camera, film and flash bulbs, razor blades, scissors, ruler, T-square and triangle, paints, paste and paper. On-going support included an irregular newsletter with new programme ideas and recognition of work accomplished. In addition, the regional health educator makes periodic visits to the community health workers, many of whom work in very isolated communities.

As might be expected the programme has met with mixed success, however, it is significant that almost four years later several of the original workers are still in the programme and they have become very sophisticated at producing simple posters, slide sets, puppets, etc. They have become an integral part of the health care team in their own community and use audiovisual materials in their day-to-day village teaching.

In Asia the community health workers, variously called primary health workers, village level workers, auxiliary workers, etc. and the special purpose workers for family planning, malaria control, etc. have much the same basic purpose. They serve to extend the primarily urban-based national medical system to the neglected slums and rural villages. In rural areas less than 15 per cent of the population will have access to Western-style medical services, although there may well be practitioners of various indigenous medical systems. The community health worker normally provides health education and preventative medical services. In some areas they are also trained in first-aid, basic curative medicine or midwifery. With an objective of providing one such worker for every village, the governments of the region are faced with the task of recruiting and training several hundred thousand such workers over the next decade or so. This task alone is formidable. In addition, if the programmes are to succeed, it would appear essential to regularly provide support services in the form of motivation, equipment and supplies, and on-going training.

Incidentally, while we are primarily discussing village health workers it should be remembered that much the same problems face the other extension workers in education, agriculture, social services, cooperative development, etc.

System Constraints

The staffing and physical facilities for any programme obviously depend to a certain extent upon government priorities and here, health has generally done quite well at least at the national levels. Western-style medical services are high priority for most Asian governments. Most cities have large hospitals and the capital cities usually boast of intensive-care units and medical research facilities. Many of these urban institutions were built during the time of colonial administrations to serve the foreign population. At that time village and rural health services were often neglected. Today many countries continue the same pattern of services without any evaluation of its effectiveness. In addition, the people of these countries may assume that better health care is provided in the urban institutions and pressure the government to expand them at the expense of the rural services. As a result the recurring expenses for large urban health institutions consume a large portion of the national health budgets.

In a similar manner national and regional training centres have electricity and at least a moderate selection of audiovisual equipment. Bulbs, audio tape, film and

other supplies will not likely be readily available. For status and other reasons an electrician or technician will usually be required to operate the equipment. The need for safe keeping of the equipment may well leave it unused. After all if the replacement cost of a bulb equals a month's salary and every blown bulb will be deducted from your salary, you wouldn't use a projector either!

Occasionally field-workers are issued projection equipment but since they usually travel by bus, bicycle or on foot this equipment will not be used even if available. It is also unlikely that electricity would be available in a village and batteries are expensive. The field-worker, in this case the community health worker, must therefore depend upon a few hand-carried flip charts or posters and the occasional visit of a mobile cinema van. Often she gives up and merely talks with her clients.

We recognize that this is a somewhat pessimistic picture, however, among the best programmes the lack of resources need not be a hindrance. A well-motivated field-worker, knowing that she is part of a smoothly functioning health team, uses the scarce resources of paper and other materials to assist a basically interpersonal communication programme. She teaches by example, by demonstration. Her enthusiasm more than overcomes her constraints.

What of production facilities: Is there no way to produce materials centrally for distribution to the field? Yes, in many cases there are very adequate workshops containing silk-screen presses, roneo machines, offset presses, dark rooms and other facilities. However, as with projection equipment, the maintenance of these machines is hampered by the lack of training and spare parts. Sophisticated machinery requires expensive printing plates, inks or chemicals for operation. This means scarce foreign exchange, or the machines sit idle. As well, as we will discuss shortly, there is usually a lack of coordination between the field-workers and the production centre. Materials that the field-workers need cannot be produced because of absolute budgetary constraints or because the budget is already committed to more prestigious projects. Prestigious films, posters and the like are seldom field-tested and almost invariably have been developed by the head office 'specialist' in response to administrative needs rather than to solve field-workers' problems. Except for a major field-testing project in Nepal and isolated cases elsewhere, it is normal for materials to be developed without any reference to the audience and users in the field. The materials produced may look good but fail to be used by field-workers.

Materials Design and Production

In the midst of these bureaucratic structures, complete with some of the most tangled red tape imaginable, there is a reasonable amount of media production. It is true that most production facilities are under-utilized (and likely to remain so for some time). It is true that it may take five or more years to produce a local translation of an encyclopaedic 'manual' adapted from an overseas model. It is true that many of the materials produced do not get used. However, it is also true that in other projects useful materials are emerging. Field-testing, both pre- and post-production, is becoming more common. Field-workers, especially in non-government projects, are beginning to fund more realistic, i.e. smaller, shorter-term, media projects such as brochures and leaflets rather than just the encyclopaedia-style manuals.

From our experiences and those of our colleagues it would appear that there are about five different strategies for the design of educational materials. Each method has its advantages and disadvantages, all of them take considerable time and only two of the five methods involve the eventual user — the field-worker.

First we have prototype materials prepared at a specially convened conference, often internationally. Programme staff from a number of countries, with subject specialists and technicians, artists and writers, are typically gathered together for one to three months to prepare guidelines and/or the completed draft for a manual, or a radio series, a handbook, or a media kit, on a specific topic. The materials produced may be very useful but will usually require extensive adaptation for use in individual countries. In addition, they often use expensive reproduction techniques and set a standard that most local production centres cannot hope to match.

Next, we have the committee-produced manual, developed within a single country, usually in the capital city. In a typical production a number of specialists, MD's, PhD's, etc. will be hired to write individual chapters in their own speciality. The results are very inconsistent, highly technical and almost never visual. At the very least extensive editing is required to achieve consistency and readability. Since the specialists must usually do the work in their spare time, coordination is difficult and delays frequent. Usually no one assumes overall responsibility for the completed production. Unfortunately most materials seem to be prepared in this way. These high-status projects satisfy the head office and are good additions to the doctor's bookshelf.

To overcome the problems of a committee, a number of publications have been prepared by having a single 'expert' prepare materials based upon his previous experience. If this person works closely with field staff the results can be highly useful. Often however field visits are neglected and the results, however consistent and logical, are irrelevant to the field needs. Film scripts and radio programmes are particularly prone to this method. Often an administrator or a writer has 'the script' firmly fixed in his head and no amount of field-work or committee supervision will change the result. Many so-called training films end up as mini Hollywood epics this way.

The fourth method, and one of the most reliable, is for the training officer or field-worker to prepare teaching materials on an on-going basis as part of regular training programmes. These materials can be tested with several classes of field-workers or groups of clients, revised and improved with every use. Over a period of months or years the training officer or field-worker can build up a collection of short, simple training aids – flip charts, posters, flash cards, slide sets, leaflets, models and other materials. Eventually the best materials can be duplicated and compiled for wider distribution. Ideally, several persons at more than one centre could cooperate in the project. By exchanging their results, they can cut down on the individual effort required. Coordination, while obviously necessary, is equally obviously difficult.

Finally we come to the fairly common situation where the individual worker, whether at the training centre or in the field, prepares her own materials for limited use. Because of lack of supervision and encouragement these materials are never seen outside of the workers' immediate work situation.

As you can see, duplication of effort often exists since there seldom are communication links up and down an administrative chain, let alone across agencies. Worse still the production units, charged with producing certain materials in their project work plans, often get tired of waiting for the content to be prepared and set about producing their own materials. They themselves may use any or all of the above methods but seldom coordinate efforts with the field-level service units.

Recommendations

On the basis of our observations then, what would we recommend as a system for the development of educational materials in a developing country?

- (1) Design and prepare materials at the lowest possible administrative level in response to field-level problems. It is absolutely crucial that top-level administrators recognize the need for communication materials for the lowest-level workers.
- (2) Involve the eventual users of the materials from the very beginning.
- (3) Think small. It is much easier to prepare and test a simple leaflet than it is to develop a complete training manual.
- (4) Think simple. A slide set is much less complicated, both in design and use, than a film. Hand-drawn or roneo flash cards or booklets are much easier to produce and revise than are letterpress or offset publications.
- (5) Field-test. Work with the eventual users of the materials to check readability and utility. Don't ask if it looks good. Ask instead 'What does it mean to you?'
- (6) Whenever possible work in the language of use. This will prevent translation problems.
- (7) Visualize. Many field-workers are poor readers. Use visuals to maintain interest and amplify the text.
- (8) Be positive and direct. Show what should be done, not the situations that you don't want to occur.
- (9) Be active rather than passive. Instructions should tell the field-worker what she personally should be doing to solve a problem.
- (10) Use plenty of photographs as source materials for your visuals. For reproduction, however, whether by roneo, letterpress or offset, the quality and understanding will be optimized with line drawings.
- (11) Revise materials as often as conditions change or as usage indicates. For visual materials this suggests slide sets or display prints rather than films or film strips. For print materials this suggests a loose-leaf format to facilitate exchanging pages.
- (12) Visit field-workers in their work situations regularly. Follow-up visits with a periodic newsletter which exchanges programme ideas, supports and encourages individual initiative, and provides a medium for maintaining the field-worker's interest.
- (13) Above all be realistic. Educational materials production takes much more time, money and effort than is usually anticipated. The physical appearance and technical quality of locally prepared materials is seldom as high as professionally prepared audiovisual or print materials from a central agency. However, the locally produced materials will often fill a direct programme need and be much better utilized than anything produced at the central facility.

References

- Fuglesang, Andreas (1973) *Applied Communication in Developing Countries*. Dag Hammarskjöld Foundation, Sweden.
- Harnar, Ruth *et al.* (1978) *Teaching Village Health Workers: A Guide to the Process*. Voluntary Health Association of India, New Delhi.
- National Development Service (1976) *Communicating with Pictures in Nepal*. NDS and UNICEF, Kathmandu.
- Varma, Ravi *et al.* (eds.) (1973) *Action Research and the Production of Communication Media*. The University of Reading, Reading.