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9. ABSTRACT

This article suggests circumstances under which television may serve nonformal education as a mass medium. During the 1960s international funding agencies relied heavily on television to stimulate educational change in non-industrial countries, but the costs of 16mm equipment and production studios were a deterrent. However, 8mm TV cameras, film, and production equipment have rapidly evolved into high-quality, light, portable, low-cost systems highly suited to the needs of nonformal educators. All of the equipment needed to create a basic film production unit with TV broadcast capabilities costs less than a total of \$6,500. Non-formal educators need to be aware of the potential uses of TV so as to be able to convey the developmental information and values that formal educators do not convey and commercial television does not convey. Non-formal educators can play a crucial role in the development of world television if they confront existing and developing options. In the next thirty years, the globe will most certainly become blanketed with video communication. Whether its effects achieve much beyond cultural homogenization will depend on the initiative and commitments of nonformal educators.

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ICIT

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MEMORANDUM

January 30, 1976

To: Dr. Clifford Block, Dr. James Chandler, Dr. Stanley Handleman,
Dr. James Hoxeng, Dr. Christine Hugerth, Dr. David Sprague,
Dr. Bernard Wilder: Technical Assistance Bureau/AID

From: Jock Gunter, Director, ICIT

Jock - FYI

I thought you should be aware of my article "NFE-TV: Television and Nonformal Education," appearing in the latest issue of Educational Broadcasting International, which is dedicated to the role of the communication satellite in education and development.

The topic for the article was chosen because educational television is often conceptualized primarily in terms of past projects serving formal education. While this remains an important area, today's broadened view of education and today's changing television technology call for a reasoned reappraisal of the medium. I have attempted to provide a general framework for that reappraisal.

There are two main ways in which my article serves the objectives of the Information Center:

1. by increasing ICIT's visibility in a major communication channel concerned with the role of educational technology in development.

This important journal, published by the British Council, reaches an audience that complements our own, and thus offers opportunities for extending our reach. In the article, our address and our willingness to provide information and services are prominently displayed.

2. by stimulating thinking about emerging technology and appropriate applications to development problems.

ICIT attempts to create awareness of the full range of media and technology currently available to educators working in development. This article complements our recent work on folk media, radio, and other lower-order technology.

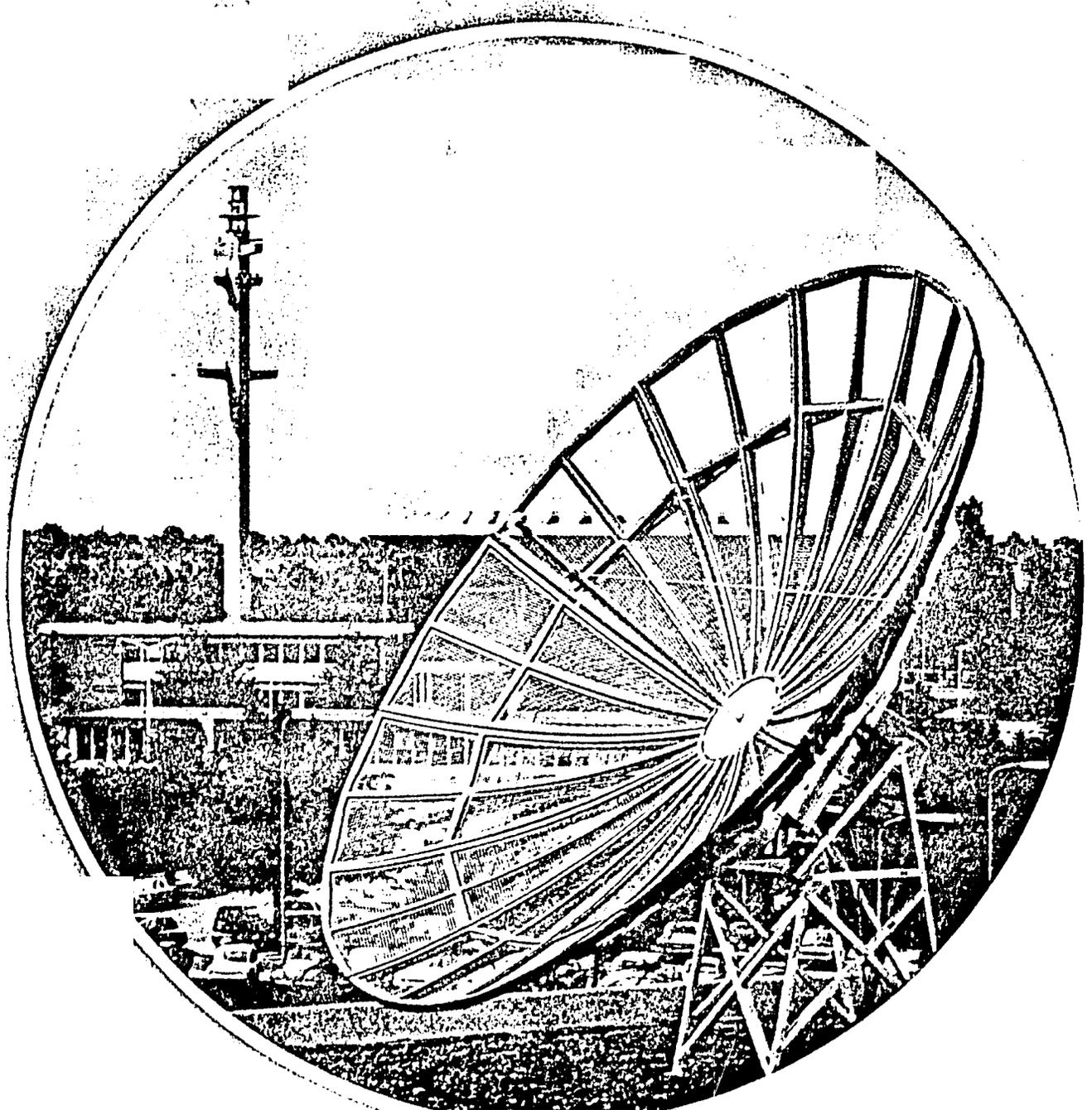
Any comments you may have on the article will be most appreciated.

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Experimental three metre community TV receiver antenna. Such stations can be designed to incorporate two-way telephony.
Photo: Philips, Eindhoven

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NFE-TV: Television and Nonformal Education

JOCK GUNTER, *AIR/ITC*
Director, Information Center on Instructional Technology,
Academy for Educational Development

This article represents the personal views of the author and not necessarily the policy of the Academy for Educational Development

During the 1960s, international funding agencies relied heavily upon television in order to stimulate educational change in non-industrial countries.* In nations as diverse as Niger, Samoa, Colombia, El Salvador and Ivory Coast, television was applied to teacher training, curriculum reform and to increasing the numbers of school entrants and graduates. For many development educators, the term 'instructional television' (ITV) was synonymous with the term 'instructional technology'.

In the 1970s, concerns over the cost and complexity of television have caused many educators to abandon TV in favour of lower cost media. This trend is most dramatically illustrated by the publication *Big Media, Little Media*. In this report, Wilbur Schramm, consultant and evaluator for the many major TV projects in the non-industrial world, divided media into two cost categories. Schramm asked whether the greater cost of film and TV was compensated by heightened instructional effectiveness[†]. He concluded that television had demonstrated no pedagogical superiority over 'little media' such as filmstrips, audio cassettes, or radio.[†] Schramm proposed that future educational reforms in non-industrial countries might consider employing 'little media'. Partly in response to this suggestion, in-

* I will refer to aid donor nations as industrial countries and aid recipient nations as non-industrial countries. All other terminology seems misleading. The developed/developing country dichotomy implies that development is a continuum, whose end point is the situation of the donor nations. The first/second/third world formulation implies that the interests of the aid recipients necessarily conflict with those of the capitalist and socialist industrial nations. I have tried to use terminology which merely describes the main objective difference between aid donors and aid recipients.

† Schramm was referring mainly to cognitive learning. Many writers have stressed the varying communicative capabilities and affective learning effects of different media. I have touched on these points in a book-length study entitled *NFE-TV: Television and Nonformal Education* (Amherst: University of Massachusetts, 1975). Copies are available from the Nonformal Education Center, Hills House South, University of Massachusetts, Amherst, Mass. 01002, USA.

structional radio is experiencing a well-deserved renaissance.

As planners of new educational reforms have moved away from television, they have also moved beyond the confines of formal education. Under the banner of non-formal education, a broad range of educational objectives has been grouped: vocational training, basic literacy and numeracy, peer learning and political consciousness raising.

While nonformal educators have brought an impressive array of media and methods to bear on these objectives, they have not embraced television. This may be due to the medium's expense and complexity and due to TV's psychological association with formal education. A recent review of nonformal education programmes using communication media found only two instances where non-industrial countries were producing television programming for nonformal education. In these cases, messages were being transmitted to receivers in 80 Indian villages and in 10 teleclubs in Senegal². These efforts hardly do justice to the mass medium which reaches 100,000 pupils in both Ivory Coast and El Salvador or 10 million American home viewers of *Sesame Street*.

My purpose is not to propose television as *the* medium for non-formal education in non-industrial countries, but rather to suggest those circumstances under which television may serve nonformal education as a mass medium. Television continues to spread of its own momentum through the world's major cities and their surrounding areas. TV is also penetrating from the upper and middle classes downward. While the extent of the medium's reach does not begin to rival radio, television clearly has a role—and an expanding role—to play in nonformal education.

Those populations which already have access to television, thanks to commercial forces or past ITV projects, could benefit from NFE-TV. If the experience of the industrial countries is any indication, television can become a major aspect of the lives of the populations to whom it becomes available. The medium

also seems to be more attractive and more credible to populations of lower educational and economic levels. Nonformal education should not ignore a medium which has demonstrated these features in various cultural contexts.

Television also merits consideration because of recent changes in its technology. Since the ITV projects of the 1960s were planned, new portable, automated and inexpensive equipment makes possible new types of programming which are in consonance with the goals of nonformal education. Portable equipment allows TV production to escape from the anti-septic environment of the studio and into the real world. Cheap and automated equipment allows professional control of style and content to be tempered by the participation of ordinary people on both ends of the camera. New pretesting techniques offer ways of checking creative decisions and of enhancing appeal and effectiveness of TV programming. These tools will allow nonformal educators, who operate beyond the captive audience of the classroom, to compete for TV viewers with commercial entertainment programmers.

The strategy of using television as a mass medium, of reaching and teaching audiences of home viewers, would be a largely new experience for education in non-industrial countries. Before detailing how this might be accomplished, I will comment upon past use of ITV in formal education in non-industrial countries, upon the development of nonformal education, and upon the feelings of major nonformal education writers about television.

Television and nonformal education

Most of the major ITV projects in non-industrial countries which were planned and implemented in the 1960s involved the introduction of television into formal education in settings where TV was not already present in the communication environment. As a result, these educational projects had to assume responsibility for many non-edu-

cational aspects of television. In Colombia, Niger, El Salvador and Ivory Coast, an entire television infrastructure had to be constructed, operated and maintained. This encompassed transmission and reception functions as well as software production. Personnel had to be recruited and trained for a broad range of technical jobs. These major activities—of a technical and logistical nature—had to be undertaken, as well as the educational functions of creating effective television instruction and integrating it into a formal education structure.

The difficulty of such an ETV enterprise becomes apparent when contrasted to major ITV projects in settings which already possess television infrastructures. For example, the developers of *Sesame Street* were able to utilize many existing television facilities. The Children's Television Workshop (CTW) was able to assume that viewers had access to a TV receiver, and would take steps to obtain necessary maintenance and repairs. CTW could also use existing transmission channels, rent existing production facilities and hire trained manpower on the local labour market. With ready-made solutions on hand for these technical and logistical problems, they were able to concentrate resources on the educational function of producing effective software.

This task alone cost the Children's Television Workshop \$6 million per year and involved intensive co-operation between child development specialists, writers, producers and formative researchers. The product of their labours was one half-hour show five days a week.

In contrast, the educational television project in American Samoa involved construction, staffing and operation of a multi-channel transmission system, installation and maintenance of TV receivers in the schools and the production of 2000 hours of programming per year. As one might imagine, this project was not able to invest in each programme anywhere near the resources of *Sesame Street*. However, this was not of great concern to the project staff.

In the early days, educational television meant 'talking head' television. The medium was used merely to transmit the content of classroom instruction. The instructor lectured, sometimes with the embellishment of graphics, demonstrations, or film

inserts. This approach was taken to its logical conclusion by the *Telescuola Popular Americana* (TEPA) in Peru. The programming of this institution attempted deliberately to offer its viewers the closest possible replica of the classroom experience. As a result, TEPA composed their shots from the same angle and distance as that of the pupil in the classroom. They also maintained each camera shot for a long duration.³ In this manner, the classroom was reproduced on the screen complete with its boring and tedious moments.

In recent years, ITV has moved away from imitation of classroom instruction and toward probing the communicative powers of the television medium. The best educational programming has shown itself to be capable of competing for viewers with commercial entertainment programming. This has proven necessary when education moves beyond the captive audience of the classroom and into the realm of mass communication. In this context, television educators are advised not to tackle the wholesale introduction of the medium into new settings. Rather, they should concentrate their efforts on generating effective programming for settings where technical facilities and talent are available. It is also important that they confine their efforts to populations who have access to TV, who have established a habit of TV viewing and whose educational needs are not being addressed by formal education.

Nonformal education ideology

The call for out-of-school learning resulted from a general disillusionment regarding the impact of formal education in both industrial and non-industrial societies. This mood was summed up by three books, which appeared in the late 1960s. In *World Educational Crisis*, Philip Coombs argued that school enrolments in non-industrial countries, which had risen dramatically in the years after World War II, would remain wholly inadequate relative to educational needs for the foreseeable future. In *Deschooling Society*, Ivan Illich commented on the retrogressive social consequences of entrusting education to professionalized, hierarchical, credentialling institutions. In *Pedagogy of the Oppressed*, Paulo Freire proposed a type of learning which would liberate rather

than oppress the world's worst 'victims' of formal education. In response to these discontents, the nonformal education movement was born.

Probably the broadest and most generally accepted definition of non-formal education encompasses.

...any organized educational activity outside the formal system — whether operating separately or as an important feature of some broader activity — that is intended to serve some identifiable learning clientèles and learning objectives⁴.

The above definition is 'value free', according equal legitimacy to any programme which operates outside the official, formal educational system. However, for our purposes, it is more fruitful to consider this formulation as a mere departure point in the quest for relevant types of television for nonformal education.

In fact, nonformal education is not value free. Rather, it encompasses conflicting objectives and methods based on conflicting value premises. In this regard, three separate positions were taken by the three major writers whose books are mentioned above.

In Philip Coombs's view, non-formal education should be developed by educational planners as a complement to formal education in each country's total learning system.

Illich and Freire conceived of nonformal education as anti-formal education, although in two different senses. They both awaited the demise of formal education and those who plan and manage its development.

Illich placed the blame for education's shortcomings upon the centralized, allegedly self-serving bureaucratic organizations which control formal education. Educational professionals like Coombs were Illich's prime culprits. Illich believed that when the vestiges of formal education and its administrators were dispensed with, when control over the educational process passed to the learner, meaningful education would arise spontaneously.

Freire's opposition to formal education was not on the pragmatic, institutional level, but on the political, cultural and philosophical levels. For Freire, the authoritarian structure of formal education was abhorrent because it served to

perpetuate the cultural, political and economic oppression of Third World people.

Coombsian TV

The main value assumption in Coombs's book, *The World Educational Crisis*, could be found in its subtitle: *A Systems Analysis*. In Coombs's view, the world's educational problems were not primarily pedagogical, political, or economic in nature. Their solution did not require revolutionary change. Rather, problems such as the perennially high school drop-out rates, the inability of rising school enrolments to cope with educational demand, the irrelevance of formal education to real-world problems, the underemphasis of vocational and adult basic education, resulted from a lack of technical expertise on the part of educational planners. Education's professionals had failed to diagnose and treat the world's diverse learning activities as parts of a total system. Once this occurred, once adequate indicators of performance were devised and monitored, corrective measures could be invented and applied successfully.

Coombs referred specifically to the unrealized potential of media in systematic reform of the world's educational activities. He lamented that media had been used to date merely to package and disseminate out-dated and ineffective educational practices. This condition was attributed to the fact that most experimentation with media had taken place on a small scale, or on the fringes of national educational systems. Experiments were mostly *ad hoc* and lacked the necessary evaluation components. Coombs felt that if media education projects were systematic and large-scale, if they were at the core of educational reform, they could reach clients who were previously unserved with dynamic teaching of up-to-date subject matter and at lower cost than by conventional means. Because of their mass audience potential, Coombs expressed particular hope for the future of radio and television in nonformal education.⁵

Coombs stressed professionalization rather than participation. Rather than a two-way communication process, media were conceptualized as efficient messengers for imparting to learners

a professionally designed curriculum. Coombs even went so far as to prescribe a minimum basic curriculum which everyone in the world should master in order to be a productive citizen.⁶

Freirean TV

For Coombs's managerial mentality, Freire countered with a philosophical view of man as 'an incomplete being conscious of his incompleteness'.⁷ For Freire, the notion that professional educators should define content and administer learning was absurd. He referred to that paradigm of traditional pedagogy as 'banking education', wherein the learner's mind is presumed to be an empty vessel into which content is 'deposited'.

Rather, Freire saw formal education's dichotomy between the all-knowing teacher and the ignorant student as a reflection of a world divided into oppressors and oppressed. The ultimate aim of Freirean pedagogy was the creation of a new, unimagined human future. This could come about only if educators and educatees entered, as equals, into a process of dialogue. Problems were to be posed, analysed and discussed. From this process came *conscientizacao* or consciousness raising. Based on new perceptions, action would be taken to solve the problem under consideration. For Freire, the stuff of true education was problem-solving.

Freire has stressed the importance of media in problem-solving education. In a recent seminar, he remarked: "When working with the *conscientizacao* process, a visual aids approach is usually more problem-solving than banking in its approach to knowledge. It is more respectful to the learners."⁸ He also wrote that the posing and solution of problems is stimulated by 'codifying' reality into messages for the auditory or visual channels. He has also advocated compound (presumably audio-visual) codifications.

In his own field of work in Brazil and Chile, Freire has used slides of artwork as his medium. However, he also recognized the potential of audio-tape, newspapers, books and dramatizations, 'as long as they depict only problems and no solutions'.⁹ Presumably, television programming would win the approval of Freireans, if it posed problems and stimulated dialogue on real-world problems of cultural, economic and political oppression.

Interestingly, Freire has made no mention of grass roots participation in the creation of media materials. In his own work, he has employed professional artists to generate visual 'codifications' and trained researchers to evaluate their impact on learners. As long as learners were involved in dialogue upon the materials, and as long as the materials dealt with the theme of oppression, Freire did not object to professional production of media.

Illichian TV

Unlike Freire, Ivan Illich manifested a deep distrust of all professionals and the modern bureaucratic institutions which they run. 'Man has become the plaything of scientists, engineers and planners', he lamented.¹⁰ Like Freire, Illich also talked of liberation and of basic changes in human nature as goals for education.

I want to raise the general question of the mutual definition of man's nature and the nature of modern institutions which characterizes our world view and language.¹¹

Unlike Freire, Illich defined educational problems and solutions in modern and pragmatic terms, rather than in the timeless and philosophical terms of Freire. For Illich, man's enslavement was a relatively recent event, deriving from increases in the powers of science, technology and bureaucracy. On the other hand, Freire implied that man had always been afflicted by the condition of dehumanization deriving from oppression of man by man.

Illich saw the tragedy of the contemporary man-made environment as deriving from man's dependence upon modern institutions to define and solve his problems for him. 'This process of degradation is accelerated when non-material needs are transformed into demands for commodities.'¹² A prime example of the translation of non-material needs into commodities was the monopoly enjoyed by schooling in education. Learning had been seen as a result of teaching by certified professional purveyors of knowledge. Knowledge was measured, graded and certified. Advancement in society depended upon one's ability to manipulate the institutions of schooling to one's advantage. Illich saw this feature of schooling as being present in all countries, be they fascist, democratic or socialist, rich or poor.

Illich proposed that the educational process be controlled by the learners rather than by educational professionals. Educational tools were to be 'convivial', a term best defined by quoting from Illich:

Tools foster conviviality to the extent to which they can be used by anybody as often or as seldom as desired, for the accomplishment of a purpose chosen by the user. . . They allow the user to express his meaning in action.¹³

In *Deschooling Society*, Illich noted that all Latin American countries now have television, which he considered to be an oppressive tool, in its present form. This was because programming decisions were made centrally, either by businessmen seeking the largest possible audience, or by educators seeking to teach school curricula. In neither case did the clients determine how the tool would be used.

Surprisingly, Illich did define circumstances under which television could be a convivial tool:

Not even television must be ruled out—although it permits very few programmers to define what the viewers may see—as long as the over-all structure of society does not favor the degradation of everyone into a compulsory voyeur. The criteria of conviviality are to be considered as guidelines to the continuous process by which a society's members defend their liberty.¹⁴

Illich seemed to be suggesting that if the programmers of television based their decisions on the desires and needs of their viewers, television could be a convivial tool.

Nonformal education into practice

In the years since 1972, the emphasis has been upon implementation rather than ideology. Attention has focused on rural populations, which are least adequately served by formal education. In 1973, the US Agency for International Development and the World Bank both made policy commitments to concentration on problems of the poorest in the rural areas of the least industrialized countries. Consequently, the medium which has received most attention and usage has been radio, the one medium which can reach these rural populations. Some have even referred to radio as *the* medium of nonformal education.

The most comprehensive re-

search project which grew out of this period was commissioned by the World Bank and undertaken by Philip Coombs and the International Council for Education and Development. The resulting volume, *Attacking Rural Poverty*, includes 21 case studies of rural out-of-school education projects in the non-industrial world. Four of the project studies made use of radio, none used television.¹⁵ This is fitting, since television simply does not reach the rural areas of the most non-industrial countries. However, recent shifts in emphasis in nonformal education do suggest a role and an increasing role for television.

On September 1, 1975, Robert McNamara, President of the World Bank, addressed that organization's board of governors. In this address, he sought to emphasize that urban problems should not be ignored in the desire to combat rural poverty. This point was made very emphatically. Whereas rural development concerns occupied five pages of the text of his speech, urban problems covered fully fifteen pages.

While the number of rural poor outweighs the urban poor (700 million to 200 million), several reasons were cited regarding the importance of development work in urban areas. The urban populations, while less in number, are growing much more rapidly than the rural populations. On the average, the cities of the non-industrial world are experiencing 2.5% per annum demographic growth and 2.5% per annum inward migration. McNamara noted that 25 years ago there were 16 cities in the non-industrial world with over a million persons. Now there are 60 cities in this category. By the turn of the century, there will be 200 such cities.

There are several reasons why these urban populations deserve the attention of nonformal education planners. They are geographically and psychologically closer to the modern sector than their rural brethren. They are more vocal and volatile than rural dwellers and will make felt their demand for education and for access to a more productive life. Furthermore, having made the transition from traditional rural to modern life, there is reason to believe urban dwellers will be highly capable of exploiting opportunities.

In some of these urban areas, television can already be considered as a tool for nonformal education of deprived populations. However, one

must recognize the variation within non-industrial countries regarding the degree of penetration of television. As of 1971, India had an average of one receiver for every 12,500 people. Iraq had one receiver for every 20 people and Argentina had one receiver for every seven people.¹⁶ While most of these receivers are in urban areas, they are not diffused democratically among urban social and economic classes. Therefore, audience studies of each particular situation will be needed in order to determine where NFE-TV could reach the desired target population.

The world-wide expansion of TV

Those urban and semi-urban areas in non-industrial countries where commercial and political forces have built a television infrastructure represent the most likely cases for NFE-TV. Those rural areas which are within the coverage of an existing educational television project are also current candidates for NFE-TV. In this connexion, the projects in American Samoa, Colombia, El Salvador and Ivory Coast come to mind.

Television's role is bound to grow over the next three decades. The expansion of the world's newest mass medium continues unabated. In the years between 1950 and 1970, the number of television receivers in the world increased from five million to 250 million. Although the majority of this growth was in industrialized countries, television has also grown in spectacular fashion in the non-industrialized countries. Between 1960 and 1970, the number of television sets rose spectacularly in several cases:

Country	1960	1970
Morocco	5,000	174,000
Iran	38,000	300,000
Philippines	38,000	400,000
Korea	8,000	418,000
Egypt	50,000	529,000
Mexico	650,000	2,993,000
Brazil	1,200,000	6,100,000 ¹⁷

As economic development proceeds, one can expect television to grow outward from the cities and downward toward the lowest social and economic classes. If the American experience is any indication, the lower classes in non-industrial countries may feel a much stronger attraction to television than their more affluent countrymen.

There is also a number of technological changes which will cause television to grow even

further. The most spectacular of these is the communications satellite. India, Iran, Indonesia and Brazil are among the nations planning to launch satellites and to use them in part for educational television. Progress continues to be made in direct broadcast technology, which will allow television signals from the satellites to be received by attaching oversized antennae to regular television sets. This will eliminate the need for costly ground relay stations. Whether one thinks educational television through satellites is a wise allocation of resources or not, the technology seems imminent, and is a media channel which nonformal educators should be prepared to programme.

In addition, television by coaxial cable and television by tape cassette are under development. Entirely new technologies for producing television screens, by use of liquid plasma crystals, are also said to be around the corner. Although these technologies have not yet become economical even in the developed countries, that does not mean that their future impact should be ignored by nonformal educators.

These changes should be seen as reminders that television is a young technology poised on the edge of a number of technological breakthroughs, which will inevitably fuel the world-wide expansion of the medium. One cannot foresee the nature, the timing, or the specific impacts which they will have. Will there be a drastic lowering of the cost of television receivers and power requirements analogous to the transistor revolution in radio? Will cassette TV mean cheap distribution of large varieties of taped programmes through semi-urban and rural areas of non-industrial countries?

Whatever specific forms the coming changes in the technology of TV should take, the television medium seems destined to play an increasingly important function in the world's communications and educational systems. Nonformal educators should prepare for television's expansion by accumulating experience with the medium, by discovering in what contexts, for what objectives and by what methods television can promote learning.

In the shadow of these imminent changes in television technology, substantial changes in the nature of television have already taken place

since the major ETV projects were planned in the 1960s. These changes should be assessed by nonformal education planners.

In the realm of TV production equipment, there have developed pieces of equipment which are cheap and simple to operate. This hardware has allowed producers to break away from the conventions of studio-bound television and into new creative areas.

In addition, new pretesting techniques have developed, which enable producers to check the appeal and educational effectiveness of their programming in draft form, and to revise their programmes in light of evaluation data. Since these changes have profound implications for nonformal education, they will be treated one by one.

Modest media

At the time when the El Salvador ETV reform was being planned, a television camera cost at least \$25,000 and a top 16mm film camera cost \$15,000. These were both temperamental machines, which could only be operated by trained professionals. The television camera even required an air-conditioned environment. Since the late 1960s, there have been dramatic changes in media hardware, which have not been appreciated or acted upon by broadcast educators.

In 1968, the first portable battery-operated half-inch video recorder was introduced. Although the first models were temperamental and unreliable, the equipment improved rapidly, to the point where today's models are serious communication tools. They cost approximately US \$1,800.

Until 1973, the products of these machines could not be edited or broadcast with satisfactory technical quality, due to the timing errors inherent in helical scan videotape. However, with the introduction of better editing equipment and a machine called the time base corrector, these impediments were removed. With an investment of approximately \$20,000 in these pieces of equipment, the 'portapack' can produce an image which, although unacceptable to commercial broadcasters, is perfectly adequate for educational broadcasters.

Equally dramatic progress has been made with film technology. Just ten years ago, a new format—called super 8 film—was introduced

into the amateur 'home movie' market. With a 50% larger image area than the previous 8mm format, and with an excellent magnetic sound configuration, super 8 soon began to attract the attention of serious communicators. In 1972, the first reliable double-system synchronous sound shooting and editing system was developed. In 1973, Eastman Kodak introduced single-system sound cartridges as well as a range of sound cameras and a fully automated, self-contained colour processor. Some months later, Kodak marketed a flying spot scanner which converts super 8 film into a broadcast television signal.

The implications of these developments in 8mm hardware are staggering. For under \$6,500, all the equipment can be purchased in order to create a basic film production unit with TV broadcast capabilities:

2 single-system sound cameras (GAF805)	\$ 450
2 quality microphones	80
10 basic silent cameras (m-22)	350
6 cassette audio recorders	300
1 "titlist" camera (Elmo)	300
2 single-system sound editors	400
4 splicers (Guillotine)	70
2 recording sound projectors (Bolex SM8)	1,200
1 film processing tank	100
still camera equipment	300
2 flying spot scanners (Kodak, Nordmende)	2,600
miscellaneous	200
	TOTAL \$6,350

This investment—equivalent to the cost of one medium quality 16mm camera—yields two sync sound filming units, five non-sync sound units and five silent units. The system allows for two editors to work at once. Sound mixing is also possible, as are titles and credits super-imposed over a live action background. Furthermore, all delicate elements in the system are duplicated, minimizing the risk that equipment break-down would immobilize the system.

For an investment of \$50,000—only two of the studio cameras used in the El Salvador ETV project—one can obtain a completely self-contained professionalized 8mm production unit with twelve simple location units for trainees, four intermediate units and five top quality units. Colour film processing is done in-house (by the Kodak automated processor) as are all the sound transfers and sound mixes. There are five simple editors,

two semi-motorized single/double-system editors and two flatbed editing tables. Copies of programmes can be made and displayed on videocassette equipment. Virtually all the functions of professional filmmaking are handled without any dependence upon outside technical services. This would be impossible in 16mm. If it were possible, the cost would be prohibitive. The \$50,000 required to purchase the above system would cover the cost of only three top 16mm cameras.¹⁸

Thus, the cost of equipment for making both videotape and film programming for television broadcast has fallen drastically in recent years. Nonetheless, broadcasters in the industrial countries have shown little interest in the new 'modest media'. With their investment in the older established technologies, they have no incentive to change. Helical scan half-inch videotape is seen as a mere toy. Super 8 film is considered too small and clumsy to edit.

The common charge levelled against both the 'modest media' is that they do not produce images of sufficient quality for serious communication work. When they refer to quality, broadcasters are talking about technical image quality. However, there are other types of quality offered by 8mm film and half-inch tape, which are more important than 'lines per inch of resolution' and which deserve special attention from the nonformal educator.

Destudification

The main feature of the new media tools is their ability to move out of the studio and all of its conventions and into the recording of real life. Insofar as the nonformal educators are interested in 'de-schooling' education, they may also be interested in 'destudification' of television programming. For the fabricated plots and actor's lines of the studio, the modest media can substitute flexible documentary coverage of real-life drama. In addition to being inexpensive, these media tools are also highly portable and easy to operate. A portable videotape unit weighs twenty pounds and a Super 8 Sound camera weighs five pounds. Both are automated. Their products can have all the emotional impact and educational effectiveness of studio drama.

American public television

recently broadcast a half-inch videotape documentary on carnival in the French Cajun country of Louisiana. Through concentration on a few central characters an intimate portrait was drawn of a culture in transition.

In 1972, a major New York television station broadcast 8mm films of the aftermath of the Nicaraguan earthquake. After brief training in filming techniques, an American doctor who was part of the relief effort shot footage which was edited by station professionals. The result was a powerful statement by a participant in a human tragedy.

The German adventurer Rollo Gebhardt used 8mm film to document his round-the-world sailing voyage, and later showed his film on West German television. His 8mm equipment was cheap enough for him to buy himself. Thus, 8mm could be his intimate companion for months while waiting to film the highlights of the voyage. Professional equipment and professional crews, with their high costs, could not have operated on this basis.

Recently, an 8mm documentary was shown for the first time on American national public television. The film probed the violent death of a Texas blues singer in the 1930s. Friends and relatives of the singer spoke to the camera in an intimate and natural manner. The more imposing and more intimidating presence of professional film equipment and crew might not have elicited such spontaneous expression from non-actors.

These vignettes illustrate some of the unique features of the new TV production tools. They are portable, automated, unobtrusive and inexpensive. The equipment is non-threatening to ordinary people and encourages spontaneous, unaffected, and intimate expression. The products of the equipment are relatively low-definition, unglamorous images, which are suited more to documenting than to dressing up reality. In both senses, they are reality based media.

This tendency to favour portrayal of real people and real situations would be to the liking of all three of the philosophers of nonformal education. Coombs, Illich and Freire agree on the importance of making real life and its problems the stuff of education for development. They only differ in their interpretations of reality and of the changes which must be effected.

Lessons from Sesame Street

Simultaneous with the trend toward cheaper, de-professionalized programming from the grass roots, the trend from the executive suite has been toward greater expense and professionalism. An entirely new area of professional concern to the broadcaster was pioneered by the Children's Television Workshop (CTW), developers of the programme *Sesame Street*. The world's nonformal educators have much to learn from this programme, which regularly attracts and teaches a home audience of ten million American pre-schoolers.

The main lesson from *Sesame Street* derives not from the style or content of the programme itself, but from the process used to develop the programmes. CTW hired the best available talent in the subject area of early childhood education, in media research and in children's television production. While the creative and artistic intuition of the producers was a major ingredient in the programming, it was not sufficient ground for production decisions. Working with the psyche of a four-year-old child, which no adult can fully understand, called for scientific research to validate the intuition of the creative personnel. Producers and researchers collaborated and fed research results into creative programming decisions.

Research personnel also had to amend their ways, in order to work in a tightly scheduled TV production organization. Scientific rigour had to be sacrificed in order to obtain information quickly for decision-making. The results of this collaborative effort were television programmes of very high appeal and educational effectiveness.

The exciting feature of this process is that the research techniques which were evolved for pretesting of programme segments are simple and informal enough to be applied by people who do not possess elaborate technical training or expensive equipment.¹⁹ When coupled with the native creative talent which is available in any human society, they imply the possibility of developing appealing and effective NFE-TV programming which builds upon the cultural traditions of the particular society.

Synthesis

These two contradictory trends in television—destudification and de-professionalization of access to the

medium, and increased professionalization of creative/research interaction—provide resources for all nonformal educators to use in reaching populations of television viewers with nonformal education. The particular nonformal education strategy for applying these tools will depend upon the cultural and political climate of each setting, and upon the values held by the developers of each project.

Those of the Coombsian view can use purely professional creative and research talent to elaborate a pre-determined curriculum of basic skills deemed necessary for the entire NFE-TV audience. Participation of members from the target audience would be limited to the far end of the camera. The purpose of participation would be to build credibility and motivation by showing people like the viewers successfully learning and using new knowledge in real-life situations.

Illichian nonformal educators can use the same tools to their own ends. Given the low cost and simple operation of the 'modest media' equipment, it is possible to turn over the entire process of shooting and editing to members of the audiences. Materials covered would be the materials deemed important by learners. Editing could be done professionally, but at the direction of the learner/creators. Pretesting would be done professionally and would serve to verify that the sentiment of the individual learner/creators reflected the concerns of the larger learner population.

Testing could also guide a re-editing process, aimed at eliminating unappealing or ineffective segments. In this way, determination of communication objectives and elaboration of materials could pass from professional control to 'convivial' control by learners.

In those settings where social transformation was a governmental objective, Freirean educators could employ television in order to communicate existing conditions of oppression, to pose existential problems for learners, and to stimulate dialogue and action by learners. Dialogue sessions and actions taken could also be filmed and fed back into the process. Professional shooting, editing and formative research would be employed in order to maximize the effectiveness of this process.

Conclusion

I have discussed implications for television educators of the current thinking on nonformal education's role in the non-industrial world. I have also assessed the opportunities represented by past and projected changes in the nature of television and its penetration of populations in non-industrial countries. The result of this inquiry is a catalogue of options which is rich and untried, and therefore intimidating.

However, nonformal educators can play a crucial role in the development of world television if they confront these options in all their diversity. In the next thirty years, the globe will most certainly become blanketed with video communication. The courage and tenacity of educators in developing a range of TV communication and learning styles will affect whether mankind enters the twenty-first century with a homogenized planetary culture or a diversified one.

Unfortunately, the impact of television to date seems to have been one of homogenization. One writer has noted that 400 million viewers around the globe tune into the American adventure series *Bonanza* each week.²⁰ Unesco has documented the heavy influence upon TV in non-industrial countries which is currently exercised by a small number of software exporters in the industrial countries.²¹ Another writer has questioned the cultural, economic and political implications of such dependence.²²

I have attempted to outline a range of TV production alternatives on the levels of value, ideology, methodology and hardware. These alternatives await implementation by nonformal educators. Their successful development could contribute to diversification of expression, learning and culture through television. International application of these alternatives could contribute to a more balanced global flow of television programming.

As a result, current notions of international aid and cultural exchange could even be affected. Perhaps cultural expression from the countries undergoing industrialization can offer the industrial nations valuable perspectives on their own futures. Perhaps such insights can assist England and America in learning to cope with the transition to the post-industrial society and to the coming era of global interdependence.

For further information

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