

VIDEO — THE TEACHERS' BIONIC BABY

by

Monte Bell*

The electronics of television has yet to be implanted into many teacher systems (to make them better-stronger-faster).

Before talking about video and our very new and modest entry into the field let me briefly explain our organization.

Winrock International Livestock Research and Training Center has its headquarters on Petit Jean Mountain near Morrilton, Arkansas (about seventy miles from Little Rock). Its offices and meeting facilities were built by the late Winthrop Rockefeller, Governor of Arkansas from 1967 until 1971. It was Mr. Rockefeller's wish that a program beneficial to people through improved livestock production and utilization would continue. Consequently, a grant was made from his estate which enabled the Center to begin its operations in 1975.

Winrock International Livestock Research and Training Center as a publicly supported organization receives funds for its programs from many different sources in addition to its endowment. It is an independent, non-profit institution, not connected with any governmental, commercial or professional agency.

A resident staff of scientists and professionals with support from consultants is engaged in developmental work through systems research and training programs in animal agriculture. The conference facilities and setting are well suited for informal workshop type forums. One of the training tools we are looking at is television.

This medium is the most complete and most flexible of the audio-visual tools. It has color, motion synchronized to sound, for sound tracks and special effects. It can be auto-tutorial for individualized instruction displayed on monitors at meetings or broadcast for reception on home TV sets. It may be pre-programmed for man-machine interaction. It has instant replay capability for special instructional purposes.

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Also, other audio-visual projections can be converted to video.

The disadvantages are cost of the production equipment and bulkiness of the portable equipment compared to movie production. However, cost of 3/4" videotape is less than 16 mm film plus processing. Playback equipment is more expensive for TV except where color TV sets are already in place.

Five billion dollars were spent in the United States during 1975 for advertising on television! This large investment of money is expected to return a profit by telling and showing people the value of products and motivating them to buy. Dividing this amount by the 70 million TV households equals an investment by the industry of over 70 dollars annually per reachable household.

The accumulative expenditure by the public for TV sets by 1975 was almost 66 billion—over \$900 per household and TV households comprised 97% of the total number of homes in the United States. Americans are using their TV sets heavily and apparently are providing their families with more choice in viewing because over 43% of the households have more than one set. Program choices are also increasing. More than 86% of the TV homes receive at least five stations and more than 25% receive at least ten.

During the course of a year the average adult female views about four hours of TV per day, about a half an hour more than do men or children. The TV set is on about six hours each day. In a Roper survey given a choice of only one—TV, newspapers, radio or magazines 59% of those responding opted to keep the TV. "Typical" viewers from the age of three through 17 will end up spending more time at the television set than at school.

Is it any wonder that books, magazines and newspapers are featuring concern about the effect of TV on children and adults? Expressions run all the way from "TV is killing sex," to "television has become not just 'a teacher,' but 'The Teacher,' influencing the language, the lives and the attitudes of nearly the whole population."

Like it or not video is THE medium of the "now"

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generation and no doubt will continue this prominence for the foreseeable future. Educational TV stations have increased 463% from 43 in 1959 to 242 stations in 1975. This is a much faster rate than the 36% increase in commercial stations, 520 to 709. Also, commercial TV programming plans for 1977 are featuring more specials of educational nature than before. The adult population in the U. S. may now be ready for more serious TV viewing. Although the major growth of TV use in the world has been in the industrialized countries, growth in some other countries has been spectacular. And in similar pattern to the U.S., educational television, particularly the non-formal type, seems to be more attractive and more credible to populations of lower educational and economic levels.

There are several ways to transmit and receive the television signal but basically they fall into two broad categories:

1. Open-circuit (Broadcast) TV. TV transmission where broadcasting is radiated for reception by the general public on standard TV receivers.
2. CCTV—Closed circuit TV, any system of transmitting TV and sound which cannot be taken “off the air” by conventional TV receivers.

The origin and range of the transmission runs all the way from a back pack self-contained unit to world wide coverage via satellite.

A TV program may be “live,” that is, the video including sound is viewed while the program is being originated, or, a program may be recorded and then viewed at a later date. Both can be done simultaneously as is popular in a football game broadcast with instant replay. The method and format of recording and playing back TV are areas of rapidly developing technology. For example there is now an array of video-tape and video-cassette equipment packages ranging from commercial broadcast to home use models. Video-discs, cartridges, cards and probably other systems are in the prototype or drawing board stage that will extend TV use even further. These rapid changes create some problems of obsolescence, however, most formats can be converted to others with varying degrees of quality loss depending upon the specific conversion. On the plus side—ease of use, availability and reduction in cost of advanced equipment should greatly enhance all types of TV production and use.

Television programming may be broken into types based upon program objectives, use and target audience as follows:

1. Commercial TV, programs produced to attract large audiences primarily to sell products and services.
2. Educational or public TV (ETV or PTV), non-commercial programs usually associated with broadcasting over educational TV stations.
3. Instructional TV (ITV), programs produced and designed at any level of schooling or training for use in formal, usually “accredited” teacher, education. The setting may be classroom, factory, field or auto-tutorial.
4. Non-formal Educational TV (NFE-TV), any organized educational programming outside the formal system that is intended to serve some identifiable learning clientele and learning objectives.

The use of television in educational programs is still in its infancy in spite of the obvious influencing power of this medium, the versatility of equipment and format, and the fact that it has been around for over 20 years.

A considerable amount of money, research and promotion has been injected into the teaching—learning community by the TV education advocates. Only recently have the administrators, teachers and learners in agriculture created much more than lip service demand. TV production equipment, some of it very sophisticated, is being set up in several of the agricultural colleges and universities, particularly in the schools of veterinary medicine. The medical and sports fields are leaders in the use of instructional TV.

Successful as well as not so successful stories are easy to find regarding the effectiveness of TV as an educational medium. The overwhelming result of the documentation on television vs. “traditional” education methods is *no significant difference*. The communication process is apparently so complex and variable (fig. 1) that substitution of one specific teaching technique with another does not significantly affect learning in the target population. Probably more than anything else TV *enriches* learning for all ages and is especially effective in teaching very young children.

So we’re back to the old truism that people learn from teachers not “teacher aids.”

Some of the common problems observed where television has not lived up to expectations for older students and adults are listed below in general order of importance:

1. Use of TV without live teacher involvement.

A COMMUNICATION MODEL

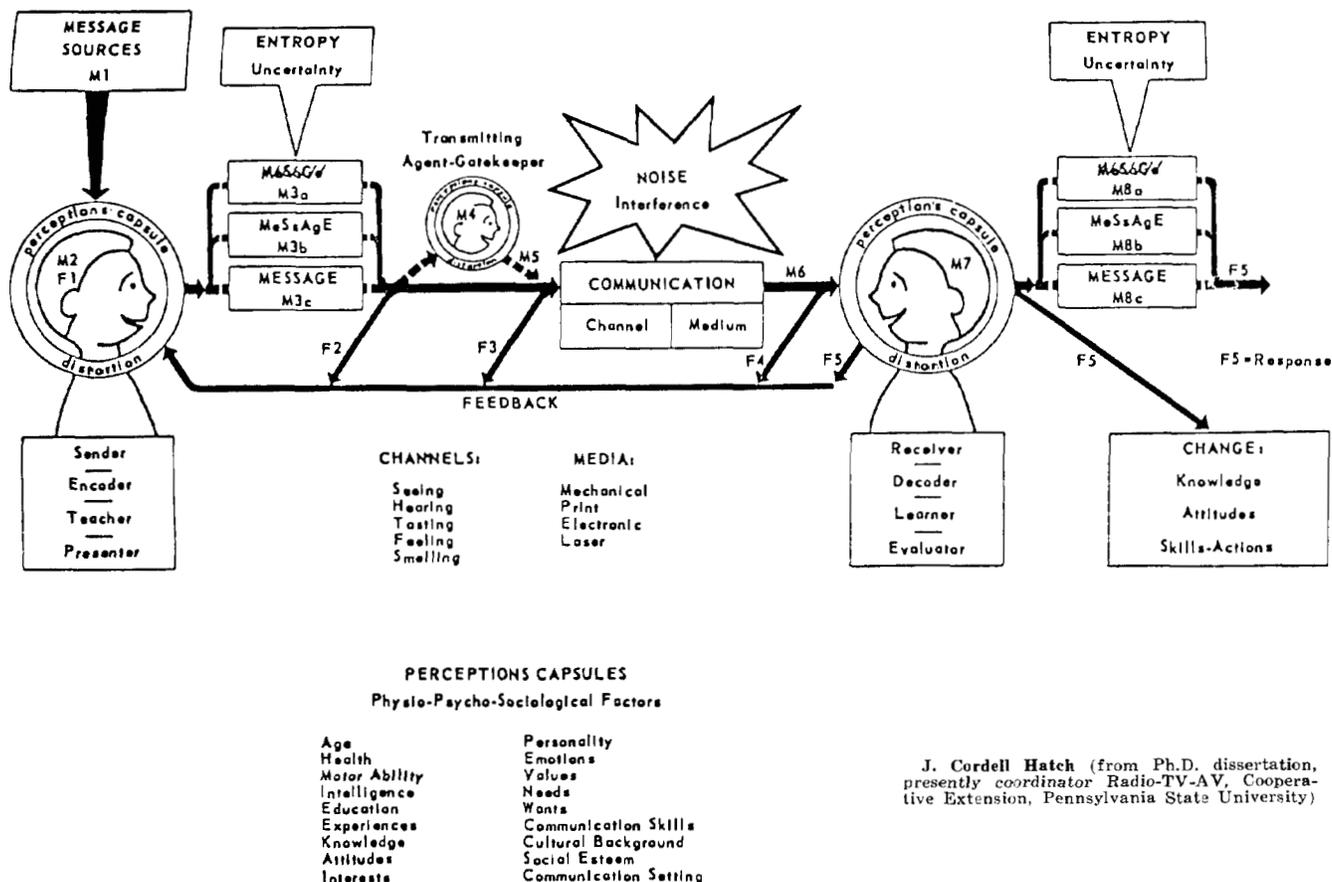


FIGURE 1

2. Poor TV teacher. (TV teaching requires more planning than live teaching.)
3. Poor student motivation. (Motivation more critical in TV teaching.)
4. Live teacher failing to prepare the audience for the TV lesson.
5. TV program irrelevant or not credible to the audience. (A TV program cannot adjust to the audience.)
6. Audience having no opportunity or stimulation for discussion.
7. Support materials not available or inappropriate.
8. Programs too long (20 minutes without a break is maximum).
9. Physical environment poor for TV viewing.
10. Poor picture and sound quality.

Most of these findings are common sense and most also apply to teaching techniques in general.

Other barriers that reduce the use and success of TV in educational programs are:

1. Failure to involve all parties in the development of programs including administrators, media specialists, live and TV teachers and learners.
2. The threat live teachers may feel about being replaced "by the tube."
3. Lack of training in how to effectively prepare for and use TV.
4. Unavailability of suitable video-tape programs.
5. High cost of equipment.

There seems to be no best kind of TV production technique for educational purposes. Clarity, continuity and relevant material are important. A subjective ("viewer") orientation reportedly works better teaching skills than an objective (or "show and tell") approach. TV is a one way communication medium, however, in many non-formal educational situations, the use of amplified phone discussions with the TV teacher is feasible and provides for two way exchange. Some of the new "electronics" used for TV games are adaptable to programmed lessons that can

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interact with the student. Lectures, interviews, panel discussions, demonstrations, drama or the "real thing" may be developed into effective teaching programs.

Production values (humor, graphics, animation, sound effects, special electronic effects, etc.) so widely used in commercial TV must be handled more subtly in educational TV in order not to compete or interfere with the message. They also must be more audience specific. For example animation may be very valuable for young children or even adult farmers after a hard day in the field but turn off a college class preparing for exams.

Most of the funding, research and experience with use of TV for educational purposes has been centered around studio productions and of course the earlier work was restricted to black and white. The availability, more recently, of portable battery powered color video cameras and recorders and electronic editors has opened up an exciting branch of videography. The technical capability and feasibility is here to enable educational TV to compare favorably in quality with commercial TV.

We at Winrock International Livestock Research and Training Center think this new technology may be especially appropriate for non-formal educational TV training programs in animal agriculture. Some of the best teachers are people who *know how to do something* regardless of their formal education level, academic credentials or even literacy. Often these people are too busy or too expensive to pull into extended educational programs. We find that many are interested in helping others learn and are willing to invest time on their own home ground to produce video-tapes for use in non-profit educational programs. In special training situations experts may be brought in for one class and then videotaped for use with subsequent classes.

Winrock International is particularly concerned with livestock producers of small and moderate size. Although it is often assumed that beef and milk and lamb which appear on our tables come from giant farms and ranches, 80 percent of the world's livestock producers are smallholders. Even in the United States, more than half of the producers are small in scale. Ruminant animals such as cattle, sheep, goats, water buffalo, camels and others are of special interest because these animals offer the world's best hope of supplying people with high-quality animal protein and other products from forage and feed-stuffs that cannot be utilized by man.

The Winrock concept is that a need exists in agricultural education for a "third party," unconstrained

by political boundaries, to support animal agriculture cooperatively with existing or developing research, education and public service groups. One of our objectives is to serve in this way.

Traditional education methods in extension and vocational education have relied upon independent programs developed by individual specialists or teachers within a state, area or school. These programs are limited to the capabilities of the individual and the facilities of the institution. In other countries, these individuals may not even exist.

Extension workers and agriculture teachers recognize these limitations but are frustrated in their attempts to correct the situation. They face decreasing resource input for livestock production training, and at the same time, expanding demand for "animal" subject matter from their clientele. Budgets for travel and other support services have been drastically reduced in many cases.

In an effort to meet this demand and expand their reach multi-state, multi-disciplinary written materials such as *The Sheepman's Production Handbook* have been developed by educators in cooperation with industry groups.

Of special interest to agriculture teachers is the project Winrock has undertaken in cooperation with Sheep Industry Development, Inc., a producer's group. Other cooperators in this project are the USDA Extension Service, University Cooperative Extension, research and teaching personnel with sheep responsibilities, non-land grant post secondary educational institutions with emphasis on livestock curricula, vocational agriculture departments, and sheep industry organizations.

Project objectives are to develop educational material packages on sheep production and products, including audio-visual lecture/demonstrations with accompanying lesson plan and handout masters, for use in adult, youth and specific education and training programs.

The incorporation of video-tape programs along with supplementary handout materials, many of which have or are being developed, should provide the educator an effective teaching package. These will give him the opportunity to bring to his audience the latest information from the top specialists on any specific subject. In addition to providing new knowledge and know-how to his students, both his and the specialist's stature and competence as educators can be enhanced. Slide-cassette programs are being developed concurrently with the video-tape format.

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The major problems in developing these instructional programs are that the time and initial investment required are beyond the capabilities of many educational institutions. Most teachers, extension specialists, researchers and private producers are willing to contribute to the development of these programs provided "someone else" will invest the time and money required to coordinate, produce, edit and distribute them. This talent is an extremely valuable resource and is an integral part of the development plan.

Each training package will consist of:

1. A 15 to 20 minute audio-visual presentation that clearly demonstrates the desired technology or production practices to the target audience in a relevant manner.
2. An outline of the teaching objectives and major points discussed.
3. Supplementary hand out information such as graphs, tables, diagrams, work sheets, etc., that will be target audience specific.
4. A list of questions suitable for testing or discussion (possibly with the TV teacher via amplified phone).
5. Suggestions for related demonstrations or activities appropriate for the audience.
6. A list of references and other teaching materials.
7. An instruction sheet so the teacher can prepare for the most effective use of the TV lesson.

The printed material will be in the form of masters which may be reproduced by copying machines at the teaching location. Insofar as possible each program will be designed to complement the *Sheepman's Handbook*.

Individual program subject matter content, with approval of Winrock is the responsibility of each author (TV teacher) and he and his institution will be credited for it. The selection of authors for programs was done by a selection committee of Winrock staff, livestock producers and extension specialists after consultation with research, teaching and industry leaders. We feel producer input is essential to ensure that the programs fill a "grass roots" need and also to provide an industry channel for distribution and promotion of the programs.

Winrock purchased audio-visual equipment including:

- 1 Portable Color TV Camera and Tripod
- 1 Portable Recorder with Back Pack
- 1 Portable 5" TV Monitor
- 2 Video-tape Recorder/Editors
- 2 Video-Monitors
- 1 Editing Control Unit
- 4 Condenser Microphones
- 1 Radio Microphone and Receiver
- 1 Set of Portable Lights
- Video and Audio-Accessories, Cords, etc.
- Supply of Video-Cassette Tapes and Expendables
- 1 Audio-Tape Recorder
- 1 Record Turn Table
- 1 35 mm Camera
- 1 Slide Projector

Office space and an editing room is maintained at the Center but a studio has not been developed because all video-taping so far is being done in the field.

The production personnel basically consists of two men, a videographer (cameraman-editor-engineer-technician-graphics specialist) and a program specialist (producer-director-technical director-writer-contact man-video assistant). This is not as overwhelming as it sounds. In some overseas programs involving primitive people the natives are trained to operate the camera and video-tape recorder in the production of local programs. Administrative and secretarial support are also provided by Winrock as are travel expenses for the two man video-team.

The Sheep Industry Development organization provided monetary support for industry-educator interaction and planning. The subject matter leaders, largely cooperative extension personnel, were selected for ten subject matter areas of sheep production. These men assisted Winrock in lining up authors (TV teachers) for specific training programs. The subject matter leaders, authors and Winrock video-team then collaborated to produce specific programs. On location the authors and leaders contributed their time and expenses to the project. The two man Winrock video-team plus eight aluminum cases filled with equipment (and a few clothes) made ten trips to sheep producing areas from California to Ohio during the past nine-month period. At each place the subject matter leader and/or program author had arranged for a certain number of programs and accompanied us to the production site, in most cases, a ranch, research field station or marketing facility.

Forty video-tape and a similar number of slide-cassette programs were initiated during this period.

This figures out at about four programs per one week trip. We used an average of four 20-minute video-cassettes in the taping of each program, 4 to 1 ratio of rough to finished video-tape. This is an extremely telescoped production schedule by most TV standards and of course the proof of the pudding (educational effectiveness of the final product) is yet to come. Our strategy was to get as much field work done as possible while we had the industry and teacher commitment and momentum going strong. Also since no single technique had been shown to be most effective for TV teaching and since our "talent" had essentially no TV experience, we felt it best to tape the programs in whatever way seemed most comfortable to the performers. We also wanted to get enough different kinds of programs put together so an evaluation would be more meaningful.

Even though a general problem of our "action news" style of production was rambling or missing bits of information due to some lack of planning (in spite of considerable correspondence on that point) several of the most carefully planned programs lost some of the realism in voice and action. Most of the professional people automatically slipped into the "speech making" mode whereas the commercial "performers" tended to be more conversational in tone. Realism seems to be an important teaching ingredient especially with farmers.

The process of editing, duplicating and developing the supplementary materials is expected to take another 18 months in order to complete the 40 programs. However, as individual programs are completed, they will be released. The Winrock videographer who operated the camera will do the editing. He took the shots with editing in mind and also there is no formal script to edit from. The program supplementary material is to be developed by the author (TV teacher) assisted by Winrock staff.

Distribution and evaluation of the audio-visual training packages will be handled in cooperation with the Sheep Industry Development organization. Extension personnel, researchers, agriculture teachers at all levels and industry leaders, many of whom were involved in the planning and production of the programs, are expected to be the users. The programs are specifically designed for adult producers and potential producers, however many will be suitable for agri-business, youth and general public audiences with an interest in sheep.

A sabbatical leave program has been initiated for educators and extension people to work as residents at Winrock on this project. In addition to subject matter expertise and industry "connections" the sabbatical recipients bring to the project, I have found the leave is an excellent in-service training experience in new communication techniques. The sabbatical program should also create a nucleus of potential audio-visual package users and ambassadors.

Audio-visual education program packages, especially field recorded video-tape, is a relatively new approach to teaching livestock management practices to producers. We hope that this Winrock endeavor will stimulate livestock subject matter specialists, change agents, teachers, private as well as public TV communicators and administrators to cooperate more fully and look more closely at the potential of producing and incorporating "on-location" non-formal teaching materials in their educational programs.

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