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ABSTRACT

In 1971 the Appalachian Community Service Network (ASCN), a non-profit community service network, headquartered in Washington, D.C., with broadcast facilities in Lexington, Kentucky, began to beam teacher education courses via satellite to teachers at 45 community receiving sites located in 13 states throughout the Appalachian region. The project was entitled the Appalachian Educational Satellite Project (AESP). The ATS-6 satellite, which reversed the functions of the satellite and earth stations, provided a major cost breakthrough. When the system acquired time on RCA's SATCOM 1 satellite, the ASCN grew geographically, conceptually, demographically, and temporally. Included in ACSN programming are community service offerings, college-level telecourses, professional development programming, and selected workshops. Recent data reveal that the average undergraduate course viewer is 35 or younger and a childless female who lives in either a rural or suburban community and who works as a fulltime professional. Most viewers are college graduates with some formal schooling within the last year. Viewers select ASCN courses to complete degrees, upgrade employment skills, or pursue an interest. Graduate/continuing education course viewers include nurses, teachers, and engineers. ASCN's aim for the future is to further diversify, responding to future audience needs. (MN)

# AN INNOVATIVE EDUCATION MODALITY--THE SATELLITE SYSTEM

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## Introduction

The instructional television approach is indeed innovative--broad in scope and considerably changed in quality since the beginning of "TV classes" approximately 20 years ago. The college "TV classes" which may be recalled from the 1960's only remotely resemble the state-of-the-art as it now exists. This expanded, nontraditional concept we include in the rubric of "education" now encompasses many facets of lifelong learning.

To clarify the position of the Appalachian Community Service Network, this paper will consider:

1. the history of the network;
2. the educational thrust of programming;
3. a preliminary profile of some of our viewers; and,
4. implications for the future of ACSN in the education field.

## The History of the Network

The Appalachian Community Service Network(ACSN), a non-profit, community service network, headquartered in Washington, D.C., with broadcast facilities

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in Lexington, Kentucky, had its beginnings in 1971 as the Appalachian Education Satellite Project(AESP). Within the scope of the 13 Appalachian States, the AESP originally beamed teacher education courses a few hours a week via atellite to teachers at 45 community receiving sites located throughout this Appalachian region.

AESP was a joint experiment of the Appalachian Regional Commission(ARC) and the National Institute of Education. The Appalachian Regional Commission was created by Congress in 1965, when Congress determined that Appalachia was a region in need of extensive economic and educational development, and that the rural areas of Appalachia lagged behind the rest of the nation. Some of the data collected by the ARC showed that in Appalachia there was:

1. an illiteracy rate for persons aged 24-40 years that was about three times higher than the average for the U.S.;

2. a lack of career counseling or career information for students in these areas;

3. increasing educational demands by the states or professional groups relative to certification or recertification of professionals and paraprofessionals;

4. geographic isolation which prevented traditional education from being effective,

5. a need for retraining of adults due to changing career trends;

6. a need for more workers in the areas of health and child development;

7. a decline in reading achievement at the elementary and secondary levels;

8. utilization of short-term crisis types of educational interventions, instead of long-range educational planning.

The original goal of the AESP, according to the ARC, was to demonstrate the feasibility of a satellite education system on a small scale, broadcasting to a limited number of receiving sites. The AESP was actually part of a much larger project, the Health/Education Telecommunications(HET) experiment, designed in 1971 by the U.S. Department of Health, Education and Welfare and NASA. The HET experiment, sponsored by the National Institute of Education, focused on three underdeveloped, remote regions: Appalachia, the state of Alaska, and the Rocky Mountain area, with the plan being to test the feasibility of delivering education and health services via satellite. Within the Appalachian area, teacher in-service education was pinpointed as a primary need.

A logical question might be, "What did this satellite technology cost?" and perhaps, "How feasible is the satellite modality for training and disseminating information?" To address the satellite cost question, it should be noted that the ATS-6 satellite was a revolutionary device. It in effect reversed the functions of the satellite and earth stations, with the satellite having more of the capabilities previously contained in the earth stations. With the increase in the satellite's complexity and power, the cost of ground stations was dramatically reduced, from several million dollars to as little as $8,000.00.[3] This was a major cost breakthrough.

At the experimental level, however, AESP did not necessarily have cost-effectiveness as one of its goals. However, in reality, even on a small scale, if just 300 students are served at 15 sites, a nominal number,

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[3]Bramble, W.J., Hensley, C.E., and Goldstein, D. "A Follow-Up Report on the Appalachian Education Satellite Project, "J. Educational Technology Systems, Vol. 5(2), p. 82.

the per student cost of $2,070.37 is only slightly more than the cost of a comparable course taken at a major state university (e.g., the University of Kentucky figure is $1,694.00),[4] so that even in its experimental phase, the cost-per-student ratio, while not low, was reasonable in comparison to traditional educational modalities. When one considers actual operational costs instead of experimental costs, for a theoretical audience of 1200 and simultaneous administration of three courses, the figure can be reduced to about $350, or less than one-fourth of the on-campus cost. Note that in addition to satellite rental time, this includes development, production, and course delivery costs, with minimal reuse of materials.

Cost, while a commanding reason, was not the impetus of the early AESP planning. Originally the system was conceptualized because it was believed that satellite delivery could be the ideal medium to reach those in the remote areas of Appalachia with the information they required to perform their jobs effectively, as well as to address some of the other regional problems noted earlier, e.g., illiteracy rate. This education was to begin at the fundamental level--and this meant with the teachers--those who needed further education to meet certification requirements, those who wanted to keep current in their field, and those who wanted to help alleviate some of Appalachia's problems. It should be remembered that the last 15 years have brought many changes in educational theory, and innovative teaching methods have been essential to enable teachers to cope with such ideas as mainstreaming, teaching handicapped children, and the like.

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[4]Bramble, W.J., Ausness, C.D., and Meetens, D. M. Cost Estimation Model for Alternative Course Formats and Delivery Modes. Technical Report #10, AESP, September, 1975. In Bramble, W.J., Hensley, C.E. and Goldstein, D., "A Follow-Up Report on the Appalachian Education Satellite Project," J. Educational Technology Systems, Vol. 5(2), 1976-77, p. 92.

Although this was the original thrust of the AESP, when in September of 1979 the "project" became the Appalachian Community Service Network(ACSN), its focus expanded. The "new" ACSN received funding from several sources, the ARC as well as the National Institute of Education. Last July, the Department of Commerce announced the awarding of a $410,000 grant to ACSN by the National Telecommunications and Information Administration so that the network could continue expansion into national public service endeavors.[5]

In addition to money, however, a major technological change was necessary for real expansion to occur. The satellite system of the AESP, as noted earlier, was NASA's ATS-6 satellite, a revolutionary device in itself. However, ACSN required a more comprehensive system, and in 1979 when it acquired time on RCA's SATCOM 1 satellite, the network was able for the first time to expand beyond the boundaries of Appalachia and beam its signal nationwide. Thus, ACSN was able to grow along four dimensions;

1. geographically, moving from the limits of the 13 Appalachian states to include nationwide capabilities;

2. conceptually, from a few teacher education courses to include many facets of nonformal education;

3. demographically, to include broadcasts seen in the viewers' homes as well as receiver facilities in classroom sites; and,

4. temporally, from a few hours a week to 22 1/2 hours a week, to now over sixty hours of ACSN programming.

Throughout its infancy as AESP, and until January of 1981, the network received assistance, in the form of land and facilities, including the broadcast facilities of UKTV, from the University of Kentucky. In January,

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[5] Appalachian Community Service Network Program Guide, Vol. 2, No 1, Fall 1980.

ACSN moved facilities from the university. This brings us up-to-date historically on the evolution and growth of ACSN, with the exception of a few comments on growth as evidenced by the number of subscribers.

Approximately one-half million persons currently subscribe, and the prediction of Dr. Harold Morse, former executive director and founder of the network and its newly elected president, is that within the next few years, growth will be "...off the charts."[6] ACSN has been called the "fastest growing public service network in the nation."[7] The chairperson of the network's 17-member board, Terry Sanford, president of Duke University and former North Carolina governor, recently commented, "There is nothing quite like ACSN in public broadcasting today. It could become a singular, powerful programming force in the field."[8]

While these technological, administrative and organization changes have been occurring, naturally there have been major changes in the direction of the programming. We now consider these kinds of advancements, and how they interface with changes in educational philosophy.

## The Educational Thrust of Programming

The viewer of original AESP programming, which was primarily graduate teacher education courses, and later interactive teacher workshops, would scarcely recognize the network today. Now our viewers can choose from these offerings, to name just a few from the 64 hours of weekly ACSN programming:

1. community service offerings, such as a course in international cooking, or perhaps one in photography;

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[6] ACSN Preview, Spring 1981.

[7] Ibid.

[8] Ibid.

2. college-level telecourses, such as an undergraduate introductory biology course, or a graduate/undergraduate course studying the effects of alcohol abuse;

3. professional development programming, such as a course in increasing children's motivation to read and write, or perhaps one in "speed learning"; and,

4. selected workshops, such as the one on loss which was aired in November to help professionals and laypersons alike develop an awareness of death and learn coping strategies; and teleconferences, such as one for the National Parks and Conservation Association dealing with threats to the national park system, like pollution and vandalism, scheduled for March.

With programming such as this offered seven days a week, ACSN viewers have a virtual cornucopia of educational opportunities to choose from, some of which should be useful at all stages of their lives.

## A Profile of our Viewers

This naturally leads us to the question, "Who is the ACSN viewer?" We now know that the viewer has changed from the teacher residing in Appalachia, utilizing our programming at regional sites. Now the viewers are comprised of people from all walks of life, from many states across the nation as well as the Appalachian region.

A recent compilation of data from some of our viewers of courses last year supports this belief in the diversity of the "typical" ACSN viewer. We can consider separately those persons who have utilized our undergraduate courses and those who have participated in our graduate/continuing education courses,

and then make some comparison.[9]

Undergraduate Course Viewers

Sixty-six percent (66%) of these viewers were female; 34 percent were male. The two major age groups represented were 25 and under (42%) and 26-35 years of age (37%), with 13 percent in the 36-45 range, seven percent in the 46-55 range, and one percent 56 years and over. The majority (54%) were "home" viewers; 46 percent viewed programming at an ACSN "classroom" site either on a "real time" or delayed tape basis. The majority (54%) had no children, although 16 percent had one child and 19 percent, two children. Sixty-four percent (64%) came from rural communities, 21 percent from suburban ones, and 15 percent from urban. Sixty-three percent were full-time workers, 15 percent were employed part-time, 13 percent were not employed and five percent were homemakers. The majority (58%) described their occupations as professional.

To summarize briefly, we can see emerging the picture of this viewer as a female, 35 years of age or younger, with no children. She lives in a rural community or perhaps a suburban one, and works full-time as a professional.

Now we will consider her educational background and requirements. Asked why they were enrolled in the course, one-quarter (25%) stated an interest in the subject, almost as many (24%) needed the course for a degree, and 19 percent wanted to upgrade employment skills. As for background, 36 percent

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[9]Note that the telecourse packages developed by the major distributors, e.g., Coast District Community College and Dallas County Community College District, are designed so that undergraduate or graduate credit may be appropriate, depending on how the telecourse is handled by the local institution (most utilize them as undergraduate courses). ACSN typically refers to these courses as undergraduate to distinguish them from the graduate/continuing education courses which are supported by ACSN with a central instructor, live seminars, and usually the development of additional materials, such as study gudies.

were college graduates, 29 percent had some college, and 13 percent were high school graduates. Most (60%) had formal schooling sometime within the last year. Thirty-two percent (32%) were currently full-time college students, and almost as many (31%) were part-time college students. Interestingly enough, 79 percent had no previous telecourses, with 16 percent having taken one before, and four percent, two courses. The majority (66%) were registered for the courses for college credit, and 18 percent wanted CEU's (continuing education units),[10] with the remainder choosing other options.

This information further clarifies the picture of these viewers. It becomes obvious that this is indeed a dynamic group, interested in education for its own sake as well as for college or career reasons. Most are and have been actively involved in the pursuit of knowledge, many already college graduates or with some college. Most interesting to the network, perhaps, is the 79 percent figure for those who had not previously taken an ACSN telecourse. This indicates clearly that we are reaching new groups of people, and certainly making learning more accessible to more people..and probably contributing to the furtherance of lifelong learning for more and more different types of people.

Now we'll turn to another classification of viewers, to help round out the picture of the ACSN audience...those who are involved in the graduate/continuing education courses.

Graduate/Continuing Education Course Viewers

Information about these viewers was compiled from courses in several different areas, such a engineering, education, and nursing. Hence, the profiles are homogenous in relation to the level of these courses, but hetereogeneous in

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[10]One CEU is awarded for every 10 contact hours of education.

relation to the viewing audience. Two of the areas, limited for the purposes of this paper to 1979 and 1980 data, will be considered: engineering and nursing.

Engineering

Participants in ACSN engineering offerings were primarily male (92%), with the principal age groups being 26-35 years old (46%), 25 or under (21%), and 36-45 years (18%). The overwhelming majority were "classroom" site viewers, although 29 percent viewed courses in their homes. Forty-eight percent (48%) came from rural communities, 30 percent from urban communities, and 23 percent from suburban communities. The majority (56%) were practicing engineers, including chemical, electrical, mechanical, civil, industrial, and other types.

Relative to their reasons for taking the courses, many (39%) expressed a general interest in the subject, 27 percent wished to upgrade their employment skills for their present jobs, and 22 percent were enrolled for career exploration purposes. As for background, most (54%) had bachelor's degrees, some (14%) had associate degrees and a few (9%), master's degrees. As seen before in the viewers of undergraduate telecourses, the majority (85%) had taken no previous telecourses, although 11 percent had. Generally, the viewers of the engineering courses were interested in continuing education credit of some type (71%), with the remainder interested in certificates of attendance (14%) or other types of credit (13%).

Nursing

Participants in ACSN nursing courses were predominantly female (95%), with 46 percent working in rural communities, 27 percent in urban communities, and 22 percent in suburban communities. The majority were RN's or LPN's (62%).

Relative to reasons for taking the courses, the majority (75%) were interested in the particular course topic, while a few needed college (3%) or continuing education credit (7%), and a small number (1%) were fulfilling a work requirement. As for background, 23 percent were high school graduates, 22 percent were hospital school graduates, 14 percent had associate degrees,

14 percent had college degrees, and four percent had master's degrees. Unfortunately, information was not available on the number of previous telecourses the nurses had taken, or their age groups. Generally, the viewers of nursing courses registered for CEU's (52%), with 17 percent registered for undergraduate credit and 16 percent auditing (14 percent did not respond).

Both of these groups have been included here in some detail to highlight the diversity of the ACSN viewer, even within the graduate/continuing education course viewer rubric. Certainly with other types of offerings, such as undergraduate courses, workshops, seminars, or telecourses, there is a varied mixture of viewers--but probably nowhere is it so pronounced as in the graduate/continuing education courses. Based on needs assessment and further market research, this area will continue to expand, and undoubtably expand more and more rapidly as the number of professional groups that require CEU's expands, and as more professionals seek knowledge for its own sake or to keep current in their fields.

It becomes apparent from just this small comparison of these two groups that there is little overlap. One group is predominantly male, one female. Substantial numbers of both groups expressed interest in the subject matter, although more of the engineering viewers were concerned about upgrading skills or exploring new careers. Education levels varied considerably between the two professional groups, although majorities of both groups were principally interested in receiving the same type of credit for participation--continuing education credit. As most educators and members of professional groups know, there has been in recent years a dramatic increase in the number of professionals whose occupations require some sort of lifelong, or continuing, education.

A rather dramatic example of this type of continuing education need can be

seen in the case of the professional engineer. It has been reported that half of their working knowledge becomes outdated every ten years,[11] obviously affecting their ability to perform optimally. One consequence of this has been the striking increase in the number of states which are now mandating continuing education for engineers.

As noted above, factors such as these should broaden the scope of the network even further, considering the numerous different professional groups, as ACSN strives to help more and more people meet their educational needs.

## Implications for the Future

One might ask now, "Where do we go from here?" This is probably a good time to explain the "why's" of how ACSN has gotten where it is and then to consider the future.

The development of programming was not founded on a pure experimental design, but was based upon field research, as educators have probably already concluded. The initial decision to focus on teacher education courses within Appalachia was primarily based upon a literature search of regional needs, as well as needs assessment within the area. At ACSN now, programming decisions evolve based upon a wide variety of factors, including:

1. literature searches, such as the ones which were done when the "old" AESP was being formulated, to pinpoint some broadbased needs;

2. a gathering of needs assessment information, such as surveying particular occupational groups, like engineers, to keep up-to-date on their professional educational requirements;

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[11] Lee, Sammie, President, National Society for Professional Engineers, Kentucky Educational Television Engineering Teleconference, April 21, 1980.

3. evaluation and research conducted on an on-going basis for all our supported courses, workshops, and seminars, by the Program Operations Center in Lexington on our present audiences, to determine how well we are meeting their needs, soliciting opinions, and getting suggestions for improvements or future offerings;

4. needs' surveys of particular target audiences, such as the members of the American Medical Association, to determine what they perceive as their membership's needs and interests;

5. solicitation of the opinions of our site monitors and cable operators, on such diverse things as technical quality and programming effectiveness and content; and,

6. research, carried on by the Program Operations Center in Lexington, and the Marketing Division of ACSN in Washington, D.C., both of whom gather information and solicit and listen to ideas from many different sources.

The above is just a small picture of what goes into our programming decisions presently. These strategies are methodical and comprehensive--certainly not haphazard or capricious. The thread that binds all of these efforts together is the concerted effort of all the ACSN staff to meet their audience's needs--to better serve them. This is where we are going in the future. This conceptualization, development, implementation and evaluation is an ongoing, active, and open-minded process.

We believe that we have just barely scratched the surface of what is possible with this amalgamation of technology and educational philosophy. ACSN's aim for the future is to further diversify and improve on what this blending can offer humanity within this broad definition of "education." It is our belief that the sum of these two parts--education and technology--can

offer a much greater "whole"--if this project, and the evolved network, can continue to be approached in an open-minded and innovative manner by those who believe in the importance of lifelong learning.

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