BEGINNINGS

In 1980, the B.C. Ministry of Education prepared to lease a transponder on the satellite on a permanent basis. It was surmised that it would be difficult to pass such a lease in the legislature, and therefore a non-profit society, the Knowledge Network of the West Communications Authority, was created in 1980 by cabinet under provisions of the Federal Broadcast Act (1970) and incorporated under the Society Act. The name "Knowledge Network" was registered and fully trademarked.

The original studio and transmitter facilities of the Network were under contract to BCIT. In 1981, the facilities were shifted to premises on the UBC campus, and the Network hired its own staff.

The Knowledge Network was set up neither as a broadcaster nor as an educational institution. According to Hardwick,

"It is an innovative agency that enables existing educational institutions to use new technologies for delivery of education and training. It differs in organisation and function from other entities like TV Ontario or the Open University in Britain. It is neither a production house, nor a university with faculty. Instead, the Learning Systems Group has developed a network of educators from existing institutions throughout the province who cooperatively assist in program choice and utilization." (Hardwick, 1984).

As seen in its constitution, the purposes of the Knowledge Network were:

1. to assist and collaborate with universities, colleges, provincial institutions, school districts, ministries and agencies of the province in the development, coordination, and
print materials, and tutorial support. Students register for these courses, pay a fee, and write an examination at the end of the course.

2. Teleseries - these are general interest program series, and are generally not offered as courses.

3. Live-interactive programming - two dimensional systems, where the television segment is supported by a tutor/host available on the telephone during the broadcast. This method is used especially for professional courses for doctors, lawyers, dentists, engineers, and nurses. The telephone calls are made on a toll-free service.

GROWTH & DEVELOPMENT

The history of the Knowledge Network can be divided into three phases. Phase I consists of the period 1981-1984: "These years saw the growing, stretching, and redefinition of Knowledge Network's purpose(s) and mandate(s)." (Reddington, 1988). During Phase II, (1985-88), the important role of general education programming emerged. The present period, which began with the merging of the Network with the Open Learning Institute to form the Open Learning Agency in 1988, giving it a fresh mandate and new focus, can be considered Phase III.

Phase I:

"The Knowledge Network began its public life on January 12, 1981. The first three years were called experimental and formed what became known as 'Phase I.'" (Reddington, 1988). From the outset, the Network's intentions were to live up to its mandate to aid educational institutions in educational programming.

The Network, as it was originally established, was to primarily provide programming for formal education as opposed to general viewing. Only those programs were aired which
delivery of educational programs and materials.

2. to establish, maintain, and operate a telecommunication network including cable, microwave, satellite and broadcast elements.

3. to operate one or more broadcasting undertakings primarily devoted to the field of educational broadcasting.

4. to foster, stimulate, and participate in the development and production of high quality educational programs and materials.

Funding for the Network came from two ministries - the Ministry of Education for the development of the learning system, and from the Ministry of Universities, Science & Communications for its university programs and technical services. The Ministry of Universities, Science & Communication launched a three-year program providing grants to non-profit community organisations outside the reach of cable systems, to enable them to acquire a receiver for the Knowledge Network programs. This is now known as PEETS. 265 non-profit agencies in the regional communities are currently installed with such satellite-receive dishes. (See page ).

The three elements of the system developed by the Network were:

1. The educational television channel whereby a variety of educational programming can be delivered to B.C. homes on the community cable system.

2. The universities' communication system, a CCTV system which connects universities, teaching hospitals, and law courts in Vancouver and Victoria.

3. An Inter-institutional instructional network which uses CCTV cable for metropolitan areas and satellite for distribution to further areas.

The three essential components of the educational service were:

1. Telecourses - integrated three-part learning systems consisting of video-based modules,
were arranged for by various colleges or university departments. "The involvement of the institutions was necessary for the survival and success of the Knowledge Network (Reddington, 1988a). "The success of the Anik B 'closed-circuit' system experiment had left the (educational) institutions with a sense of ownership of the medium. The change-over to a public cable channel delivery put the institutions in the role of participant, not part owner. This loss of control had a detrimental effect on relations with institutions." (Reddington, 1988). The provincial ministry therefore deliberately created "a symbiotic relationship" by funding the institutions and not the Network to create and/or acquire formal education courses for broadcast on the Network. Thus, the two were interdependent - the Network, on the institutions for programming, and the institutions on the Network for airtime and delivery.

The need to involve the educational institutions at different levels was recognised, and in the early spring of 1981, the Network invited representatives of B.C.'s colleges and institutes to a Program Advisory Committee meeting in Vancouver. Some twenty representatives attended. Chairman Dr. Hardwick outlined the Network's wish for assistance in "advising the Network Board on program availability and telecourses". He also described six classifications of programs to be offered:

1. Telecourses
2. Video support-supplement to actual courses
3. General Education Series
4. Interactive Teaching
5. Some K-12 School Broadcasts
6. For some Remote Small Secondary Schools

(Glenesk, 1981).
"This outline reflected the programming philosophy of 'educational and social benefits' accepted by the Board of Directors in early 1981 as acceptance criteria for programming." (Reddington, 1988).

During the first year, the schedule was ad hoc. Whatever tapes came in for the day were broadcast, and then the Network went off air. The limited budgets of colleges meant that most times, only the less expensive programs would be available. Only later was a schedule pre-planned. (Moscrip, 1989).

In order to formalise its relationship with the post-secondary institutions, the Network's Board established the Learning Systems Working Group (LSWG) on March 9, 1981. Two groups were initiated, one for the three universities of B.C., and one for the fifteen community colleges and five provincial institutes. The role of the LSWG were stated in a resolution of the Network's Board:

"Resolved that the LSWG's Terms of Reference be to assist the Manager, Learning Systems in development of telecourse priorities and contribute to the process by which courses are acquired, adapted and implemented." (Board Meeting, March 9, 1981).

"...in the early days, much time was spent on differentiating the roles and decision parameters of the institutions as opposed to the Knowledge Network. This tension, while not uncommon in dealing with entities so protective of their autonomy, was due for the most part to the lack of knowledge within the institutions about non-traditional instruction." (Reddington, 1988a).

The LSWG in its first meeting on May 27, 1981, established an operating principle wherein it would not address decisions on scheduling details, but rather address "more general issues." In September of that year, the Group recommended that its role in
programming would be:

1. To assist in the development of programming - as in advance planning and distribution of air-time.


The LSWG-Colleges & Institutes were asked to assist the Network in determining ".... how best to use the scarce air-time." A sub-committee was formed under the direction of Bill Christiansen of Okanagan College, and for the next 23 months, this policy (which subsequently became the Network's Scheduling Policy) underwent an extensive development process.

The relationship between the educational institutions, as represented by the LSWG, and the Network, were described by Kathleen Forsythe, then Chairperson of the LSWG, thus : "each institutions with this group is a potential facilitator for and contributor to the Network program schedule ...." while "the Network co-ordinates the expressed needs of its public constituents into the best possible program schedule." She also pointed out that ".... the role of the LSWG is .... a forum to make educational decisions and to do educational planning, short and long-term .... The Network is not funded to produce or acquire programs as these decisions are the responsibility of the institutions, but the accountability of what is on-air is that of the Board of the Knowledge Network." (LSWG Minutes, Jan. 21, 1982).

During the development process of the educational programming policy in the province, "the institutions gained an understanding and appreciation for the role the Knowledge Network had to play in balancing formal and general education programming."
In a LSWG meeting on September 23, 1982, it was recognised that the programming needs of educational institutions "are always in an evolutionary stage and are so varied and complex that no one set of definitive guidelines and procedures could ever meet the requirement for a set of comprehensive and binding principles that would apply in every instance." (Christiansen, 1982). Therefore, a general policy statement rather than specific procedure guidelines was recommended.

Another important issue was that of the autonomy of the Network over scheduling and programming. Autonomy and flexibility were seen by the LSWG as necessary factors for the Network to perform its tasks efficiently and satisfactorily.

"More importantly, the draft policy recognised that the Network had a mandate beyond institutional offerings by stating: 'Whatever other criteria are established for determining which programs are aired, a basic test must be that such programming allows the Network to maintain its policy of comprehensiveness.' .... It further recognised this principle by indicating that it was '.... the Network's mandate .... to develop and provide programming outside institutional offerings.' (Minutes)." (Reddington, 1988a).

These statements were formalised in a scheduling policy that was endorsed by the LSWG and approved by the Network's Board on June 21, 1983, and distributed to the educational institutions in January 1984.

"The impact of the total of the dominant face of the Network being devoted to institutional programming was two-fold; the first was in terms of enrolments (in telecourses offered by the educational institutions) which as figure indicates were high. The second was in terms of the public response to the lack of comprehensiveness of programming on the Network as audience size measured by the A.C. Nielsen Co. reached only 125,000
weekly viewership. This lack of viewership was seen by the Network as a major barrier to the fulfillment of a comprehensive approach to educational opportunity through the television medium. It would become the focus of the Network in Phase Two." (Reddington, 1988a).

**Phase II:**

The incorporation of general education programming was the major factor that emerged during Phase II. The need for such programming had been identified as early as 1977, when Pat Carney (who had managed the province’s first experiment with educational programming) stated that opportunity should be provided for "... part-time participation by an aging workforce in continuing need of retraining and upgrading in the face of rapid technological change." (Carney, 1977). "This philosophy was supported by the Board of Directors of the Network in early 1981, when they outlined 'educational and social benefits' as acceptance criteria for programming". (Reddington, 1988a).

From as early as 1982, the Network had been gauging the interests of the general public. A study in that year concluded that the public desired a diverse range of non-formal, informative programming from the Network. (Canada Facts, 1982). An analysis of internal operations in 1983 defined Open Sector programming as ".... high quality informative, non-formal educational and entertaining television that .... enables the Network to respond directly to the interests of its audience." (Reddington, 1988).

In September 1984, Dr. Hardwick, Chairman of the Network, introduced a new set of goals for the Network, which encompassed the desire to provide a fully developed comprehensive program schedule. "True to its educational roots, this model would employ traditional education subject areas as the basis for program scheduling. (Science, Social
Science, Natural History, Fine Arts, etc.) .... This model was approved by the Board for implementation in the Fall of 1985." (Reddington, 1988). Responsibilities for family and children’s programming, and general education and personal development programs, were outlined. This also "provided direction to the Network to seek an educational partner when involved in non-formal (general education) programming." (Reddington, 1988).

Support for the general education mandate was also seen in the allocation of more funding. $520,000 was approved in the 1985-86 fiscal year; in 1986, an application to the 'Fund For Excellence' for $650,000 worth of program acquisitions in 1987-88 was approved. This contrasted with earlier programming budgets: $170,000 in 1981-82, $270,000 in 1982-83, and $218,000 in 1983-84. (Reddington, 1988).

The low level of programming budget allocation during 1983-84 was also due in large measure to the recessionary trend in the province during that period. A 15% cut in budgets made educational institutions very wary of investing their scarce resources in something as uncertain in producing tangible results as telecourses for distance education. Enrolments also declined during this period. According to Walter Hardwick, this period of recession set the whole process of development back by at least five years. (Hardwick, 1989).

Besides, the enormous costs of programming had not been earlier realised; educational institutions often did not have access to adequate funds to acquire, let alone produce, programs. (The approximate cost of acquiring a program ranged between $35-50,000; to produce a program would cost at least $1 million). Moreover, because of the recessionary conditions, further investment in programs during 1983-84 was difficult. (Reddington, 1989).
The need to consolidate resources during these years led the Network to convince the Ministry of Post-Secondary Education to create a Telecourse Selection Committee to fund the acquisition and adaptation of telecourses by colleges and institutes. A seven-to-eight member committee, consisting of representatives from the educational institutions, was given an annual budget of $250,000 to be spend on the acquisition of programming based on applications for telecourses. (This Committee functioned successfully from 1984 to 1988, when it was dissolved because of the new structure of open learning in the province.)

"The resulting number of quality telecourses combined with increased offerings from the universities led the Network staff to request permission from the Board to provide a lengthened schedule day. This accommodation of institutional student needs was approved at an annual cost of $30,000, and commenced in the Fall of 1986." (Reddington, 1988).

The concept of the "Ladder of Opportunity" was introduced by Glen Farrell, President of the Network, in 1986. (See section on Programming for full description). This "ladder" was an ascending scale of educational needs of viewers, based on which programming could be divided.

With added budget for general programming, the audience began to grow. Measured audiences grew from 325,000 weekly in 1984 to over 650,000 in the 1987-88 television season. The public's appreciation for the Network's educational nature were also reinforced. Audience survey results in 1987 showed that 74% of the random sample felt they learned more from watching the Knowledge Network than other stations. Also, 82% of the respondents felt that watching the Knowledge Network '.... makes me want to learn more about a subject.' 91% thought that through its programming the Knowledge Network '.... provides opportunities for viewers to continue learning throughout their lives.' Another success was the level of public participation in formal institutional offerings via the
Network, despite the recessionary period which began in 1983 but did not fully impact enrolments till 1986. Table 1 and 2 illustrate the rise of enrolments and the balancing of the schedule, respectively. (Reddington, 1988a).

Institutions began to develop their own courses, as a result of which their use of the Network in terms of hours declined. Being traditionally locale-based in regular education, the colleges did not know how to market and promote their telecourses to a dispersed audience of students. Meanwhile, the television face of the Network served to advertised itself. Thus, while more people became aware of the Network’s educational programs, fewer registered formally for telecourses. The public "wanted to learn, but they didn’t necessarily want to learn formally." (Annual Report, 1986).

Reddington points out some of the difficulties that arose during this period:
"....the scheduling policy practices and procedures established in the 1984-85 academic year produced schedules which showed constant levels of apportionment of time as a scarce resource. During this same period the number of learning opportunities fell dramatically, reflecting a move away from group support to more independent telecourse needs/support by institutions. This movement is not seen as a negative development but in the college sector it has not produced the same level of program coherency as in the university level. The demise of the LSWG-Colleges & Institutes in anticipation of the OLA planning councils has caused a vacuum in program direction left uncoordinated when the councils did not come into being." (Reddington, 1988).

The 1985-86 period saw an identification of the need to produce local oriented programs in cooperation with the educational institutions, to supplement the acquisition of outside programs. The scope of co-production was broadened in 1985 to include general interest as well as academic areas. In series like "The Truth About Arthritis" (co-produced
with the Canadian Arthritis Society) and "Contemporary Art in Canada" (co-produced with the Emily College of Art & Design) material adapted from other sources was combined with material produced by the Network. (Annual Report, 1986).

Meanwhile, it was felt that the work of the Open Learning Institute and the Knowledge Network were complementary. In 1986, the two organisations were merged on an operational basis and operated by one Board, though no legislation was passed to this effect. It was only with the passage of the OLA Act in 1988 that this merger was given a formal structure.

Phase III:

In 1988, as a result of new legislation, wherein the B.C. government sought to provide greater focus to distance education in the province by bringing together the two regional educational bodies, the Knowledge Network was merged with the Open Learning Institute to create the Open Learning Agency.

POLICY & MANAGEMENT

The distance education model that British Columbia has chosen to implement is neither a centralized one (where all activity is controlled from one institution, as in the British Open University) nor a decentralized one (where individual institutions carry on their activities independent of each other, as in the USA) but rather a cooperative model. (Mitchell, E., 1989). Each distance education provider is able to develop programs which meet the needs of their constituency yet each looks to the Knowledge Network as an information as well as communications hub. This hub position enables the Network to identify gaps in province-wide distance education programming, pinpoint duplication of effort, encourage cooperative development, reduce system-wide costs, facilitate effective media
selection, and develop needs driven communication systems. (Mitchell, E., 1988a).

The Mandate:

Under the new Open Learning Agency Act of 1988, (Bill No. 58 introduced by the Honorable Stanley Hagen, Minister of Advanced Education and Job Training, in the Legislative Assembly of British Columbia in the Thirtyfourth Parliament Session, 1987) the mandate of the Network has not changed, but has been widened to provide greater scope for operation in some spheres. The purpose of the Open Learning Agency, as stated in the 1988 Act, are:

1. to develop and to operate a provincial credit bank for students
2. to develop course materials for use in open learning
3. to deliver these courses where appropriate through collaboration with the rest of the system
4. to be involved in formative and summative research in the area of open learning
5. to operate any number of telecommunication services on behalf of the educational system of the province.

Thus, the Knowledge Network of the West Communications Authority incorporated under the Society Act was dissolved by the 1988 Act, and in its place was created the Knowledge Network component of the Open Learning Agency. The specific policy guidelines for the Network are laid down in separate documents - the Television Telecast Policy, (See below, section on Stated Policies and Role).

The responsibilities of the OLA Board in relation to the Network are given in the Television Telecast Policy. These are:
- to review and approve the program content of the broadcast schedule prior to each learning season
- to review program categories and allocation of % schedule for each category annually
- to act as the final arbitrator on controversial programming
- to review and amend the Television Telecast Policy as necessary.

The responsibilities of the Network are stated as:
- to develop procedures and ancillary guidelines which will ensure adherence to the policy
- to develop a broadcast schedule for submission to the Board
- to provide guidelines, consultation and support to system users with respect to the effective educational use of television
- to advise the Board or its designate of potential controversial programs.

In the introduction to the 3 Year Strategic Plan (1989-92) of the Open Learning Agency, the changing learning needs of society are outlined, and it is stated that a shift from institutional to individual focus in educational systems will be marked by, among other factors, the following factors which refer to the impact of technology:

- Widespread use of telecommunication networks and other technologies, not only to enhance access to information and learning opportunities, but also to tailor the process of instruction to individual learning style and ability.
- The distinction between distance and face-to-face learning will become blurred with greater use of technology and as it becomes possible to choose instructional methods for their appropriateness to the learner's requirements.

The strategy is spelt out in terms of Purposes. Objectives under each Purpose, and implementation goals for each of the three years under consideration.

Purpose #5 “To operate one or more broadcasting undertakings devoted primarily to the field of education broadcasting” can be seen as defining the strategy for the Knowledge Network.
The first objective under this 'Purpose' is "to operate the educational television network and provide basic studio-based production services required by the Open Learning Agency components and other educational users."

The second objective under this 'Purpose' is 'to provide the service and infrastructure for the expansion of the use of audio video and data communication networks for the delivery of open learning programs.'

Under Purpose #6, Support Requirements, the fourth objective "to establish a recurring capital equipment development and renewal program" points to a production equipment improvement strategy.

**Funding:**

Under the OLA Act of 1988, the Knowledge Network comes under the Open Learning Agency for funding purposes. 75-80% of the funding of the OLA comes from the provincial government, the remainder of the operating budget comes from tuition fees primarily through the Open University and the Open College. The Network also charges fees for the non-credit courses that it offers to students. Once OLA's expenditure budget is established, its division between the three units is an internal procedure.

Other initiatives and grants are accessed by the Network on a project-by-project basis - some international, some Canadian, some provincially focussed.

The recently created (1988) Knowledge Network Development Fund has provided financing for program production. An amount of $175,000 has been made available for seed production projects. However, this fund is usually distributed as partial funding to projects, which are encouraged to seek funding from elsewhere as well. Educational institutions apply for grants from this Fund through each of the components of the OLA.
The respective Planning Councils, on which representatives from the educational institutions serve, examines the proposals and recommends approval. "This probably the biggest encourager to institutions to work with the OLA in program development." (Mitchell, E., 1989).

**Promotional Activity:**

Since the bulk of its funding comes from the provincial ministry, "promotions are not essential to the funding of the Network". (Harrington, 1989). However, 'promos' (promotional shorts on television) are put on air to encourage viewing and distance education enrolments.

The "Partners in Knowledge" concept, (presently part of the Strategic Plan of the Open Learning Agency), where individuals in the public pay a fee to become members, is primarily taken from the US Public Broadcasting System. In fact, the idea grew out of the fact that viewers in British Columbia expressed a willingness to contribute to the Network, since some of them were already responding to appeals from the public television channel in Seattle. However, such revenue is only about 3% of the total budget. (According to Harrington, 1989, this type of funding could be kept in mind for future expansion plans, especially since it is unlikely that funding from the provincial government will increase.)

Corporate funding also has not been resorted to by the Network, unlike the public broadcasting services in the USA. There have been some rare instances when a corporation has come forward voluntarily to sponsor a program series, like IBM did for the teleseries "I, Leonardo".
Management & Structure:

The Ministry of Advanced Education of the province is the major funding source for the Open Learning Agency. Under this ministry, the Coordinator of Distance Education Programs is responsible for all matters relating to distance education, including the OLA and the Knowledge Network. The Lieutenant Governor-in-Council and his Cabinet appoint the members of the OLA board. This Board is responsible for overseeing and ratifying policy initiatives of the OLA and its three components. For example, the Knowledge Network's annual programming schedule has to be approved by the Board.

However, the OLA is not directly accountable to the Ministry, but rather to its own Board. It functions as a responsible autonomous body, much like the CBC.

The Agency presents its rotating 3 Year Strategic Plan to the provincial government, based on whose approval the funding is made as a yearly grant to the Agency. The Budget is planned in August of every year. The number of hours of telecast, of students to be reached, and other strategies and estimates are laid out. (Harrington, 1989).

The Executive Council is the management body of the Network. All senior managers are responsible to this Council, and have to present their annual activity plan to the Council. The Council is headed by a General Manager, who is also a Vice-President of the OLA. The three departments of the Network are the Operations Department, headed by a Director of Operations, the Program Development Department, headed by a Director of Programming, and the Resource Development Department, headed by a Marketing Manager.

It is significant to note here that most of the management personnel of the Knowledge Network (except for individuals in the Operations Department) have come from
professional backgrounds in education. Lucille Pacey, General Manager, was at the University of Victoria, Nini Baird, Director of Programming, was at the Emily Carr College of Art & Design, Mike Reddington, Marketing Manager, was at the Vancouver Community College, Betty Mitchell, Projects Manager, was a teacher in Manitoba. The Chairman of the Open Learning Agency, Glen Farrell, also came to the Knowledge Network from the University of Victoria. This type of professional background of the management personnel may help direct programming towards educational content vis a vis commercial content.

**Relations with the Federal & Provincial governments:**

The Network maintains an "arm's length relationship with the provincial government. We relate to the Ministry of Advanced Education and Job Training. It is important for federal government reasons that there is that distance...." (Pacey, 1988).

Since the Knowledge Network was not originally envisaged as an educational broadcaster, it did not apply for a CRTC licence. There are, apparently, "loopholes in the regulations about satellite broadcast" (Pacey, 1988) which allows it to function inspite of this. However, in case a new Broadcast Act (currently under discussion in the federal Parliament) is passed, the Network may have to apply for a licence, and for this purpose, it is necessary to demonstrate an "arm's length relationship" with the provincial government.

"We relate quite closely to the Communications Department of the provincial government in looking at the communications policy in the province, and particularly looking at the provincial-federal interface because it is the first point of entry." (Pacey, 1988). In British Columbia, "it is important for" the Knowledge Network to relate to four
different ministries. "Though at the formal basis we are linked to (the Ministry of) Advanced Education, we have to communicate with the Ministry of Education because we are also servicing the K-12 system; we have to relate to (the Ministry of) Culture because of the general public programming mandate." Recently (1988) the Network has created an Inter-Ministerial Liaison Committee, which brings representatives from these four ministries "to the same table." This to help each ministry understand the role and functioning of the Network. "For example, when the Communications Department talks about getting a (CRTC) licence, they should understand the implications (of this) for (the Ministry of) Advanced Education."

The Network relates to the CRTC through the ATEC (Association of Telecommunications Educations of Canada) with their colleagues (the other three educational telecommunications organisations in Canada), "as any broadcaster in the case of reviewing of all decisions, intervening when it is important, so we are involved with correspondence on a regular day-to-day basis." Thus, "though we are not licensed, still there are activities which are occurring."

According to Pacey, "though we are seen as mavericks in Canada by the CRTC", they (the CRTC) will not now take away the Network's broadcasting rights, especially since it is providing a valuable service to the region. (also - Mitchell, E., 1989). The other three educational broadcasters in Canada, ACCESS Alberta, TV Ontario, and Radio Quebec, under the ATEC umbrella, have put forward "fairly generous regulations and procedures that have benefitted us even though we do not carry a licence ....". The CRTC decision to make cable companies provide priority carriage on an unimpaired basic service for educational broadcasters, which meant that the cable companies .... had to ensure that we were somewhere on the spectrum between channels 2 and 13 .... really helped us ...."
However, because some viewers preferred to cable head-in, the Network "had to negotiate with the cable carriers in the province and convince them to take our service free, we do not charge them, and this gives them a free full educational channel at no cost, and we see that as their service to the public." (Pacey, 1988).

The unlicensed condition of the Network is a cause for concern, according to Betty Mitchell, Projects Manager. "There is a fight between the federal and provincial government whether we are educational or broadcasting." The Network is planning to go forward with application for a CRTC licence. However, if it is going to come under the CRTC guidelines for Canadian content, this may prove difficult in terms of programming. Canada does not produce a lot of educational programming, and what little it does produce is broadcast on the CBC. "It is like telling a university that all the textbooks have to be written in your country - that does not happen .... It is a question of an educational broadcaster having to abide by guidelines that have been put into place for entertainment broadcasting, versus our educational mandate" of providing programming in the identified thematic areas. It can also amount to the federal government telling the provincial government about education (which is a provincial jurisdiction), of the government telling the educational institutions what they should include in their courses. (Mitchell, E., 1989). The decision to apply for CRTC licensing is therefore dodged with problems.

PROGRAMMING

Programming Policy:

The Network acts as a full program partner of the Open Learning Agency along with the Open University and the Open College. It has a dual mandate - that of programming, as well as, through an order-in-council, the mandate to operate the telecommunications
system on behalf of the province. Therefore, the Network has both a service role and a programming role. (Pacey, 1988).

According to Lucille Pacey, General Manager of the Network, "we focus our energies on general education for children and adults and we determine the programming content for the children's programming and the primetime programming which is from 8-11 p.m." The educational institutions are responsible for providing the curriculum-based programs, which the Network telecasts on their behalf.

"In addition, as a temporary measure, we are working with the schools and programming for the K-12 area." This was a one-year project carried out by the Network for 1988-89, but at the end of the period "we hope it will evolve into as much of an area as the Open University or the Open College." That is, the Network hopes that the Ministry of Education will create a fund for regular schools' television programming.

The service component of the Network's mandate includes the provision of telecommunications in a number of areas. "The one we are best known for is television, and we have a policy - the Telecast Policy - which defines how much of the day is filled by the Knowledge Network and how much by" the educational institutions. (Pacey 1988). "We are quite clear in our policy. We have provided a range and it has some flexibilities and some clear points about how we make the decisions when we want to expand the range."

Under the Program Development Policy of the Open Learning Agency, (1988), the Knowledge Network is mandated to:

1. Provide public education programs including:
   a. continuing education certificates in thematic content areas
b. non-formal adult education
c. programs for pre-school and school age children
d. programs in partnership with community agencies
e. programs in partnership with public & private sector agencies

2. Provide programs which complement and support prescribed curricula for the public school system.

The Program Development Policy also lays down guidelines for cooperation between the three units of the OLA for planning and implementation of their mandates.

The Television Telecast Policy of the Knowledge Network (1988) provides "an overarching framework" to guide the Network "in carrying out its responsibility of ensuring the effective and fair utilization of the educational television resource of British Columbia".

The Network is "responsible for determining the utilization of the broadcast schedule in accordance with established Board policy and in consultation with system users. The annual broadcast schedule shall be planned on the basis of three learning seasons of approximately seventeen weeks each." These learning seasons coincide with the three semesters of post-secondary education, i.e., the Fall Semester from September to December, the Spring Semester from January to April, and the Summer Semester from May to August.

The annual broadcast schedule "shall be apportioned according to the following sources of program categories:

1. Curriculum-based programming (50% minimum guarantee)
   post-secondary educational institutions programs: 45-60%
b. schools programs: 5-15%

2. Public Education Programming (40% minimum guarantee)
   a. children's programs (including pre-school): 20-30%
   b. adult education programs (including non-formal, public adult education, community agencies, public and private sector agencies): 20-30%.

The post-secondary educational institutions' programs are those "sponsored by colleges, institutes, and universities". School's programs "will complement and support the provincially established school curriculum."

Public Education Programming is "targetted at the general adult population and includes" non-formal public adult education, community agency programs, public and private sector programs, and children's programs.

The creation of Program Zones is also laid out in this policy, i.e, to provide "established blocks of time within the annual broadcast schedule which provide consistency and continuity for the viewer." For example, children's programming is telecast during the early evening, when they return from school, educational programming for adults during the early morning or late evening hours when they will have time from work commitments, general programming during primetime viewing hours 8-11 p.m., etc.

The length of the Broadcast Day is also specified in this policy. "The standard operating or telecast day will commence at 8:00 a.m. weekdays and 6:30 a.m. weekends and conclude at 11:00 p.m. year-round." The exceptions to this are the weekday commencement of telecourses at 6:30 a.m. during the Fall and Spring seasons, and the occasional program overrun beyond the 11:00 p.m. sign-off to allow for completion of an extra-length program.
The Telecast Policy includes a section on "Controversial Programming", even though, since it does not hold a licence from the CRTC, it "is not obliged by law to conform to CRTC policies." Yet the Network, "as a responsible Canadian telecaster, voluntarily complies to the CRTC policies and guidelines with respect to controversial programming." The Network will also expect programs to "conform to those standards which are generally subscribed to by the public broadcast system ..... a balance must be achieved between the portrayal of program content and the danger of being overprotective ...."

Public service announcements on behalf of government departments and agencies and of crown corporations that are educational will be carried unless an election is called. Promotions, defined as "those on-air spot announcements that are designed to increase participation in learning" will be aired on behalf of organisations provided they meet "applicable standards and/or licensing requirements."

A Public Education Program Policy was also drawn up in 1988 "to clarify the scope and purpose of public education programming .... " In this document, "thematic areas" are listed. The Public Education Programming Themes specifically defined are:

1. Arts and Humanities
2. British Columbia Lifestyles
3. Career Development
4. Economic Development
5. Environment
6. Health
7. Human and Social Issues
8. Leisure
Since this study is concerned only with curriculum-based programming, it is not seen necessary to discuss these areas of general public programming in detail here.

Programming Administration:

The Open Learning Agency's Board has developed a triangular hierarchy of the roles of its three components vis a vis the educational needs of the public. "There is a natural laddering of programming activities and it is very clear to us who programs what area." (Pacey, 1988).

At the bottom of the ladder is general public education, at which point television works well as it is a good medium for catching the attention of the viewer and creating an awareness. "As we continue up the continuum, learner characteristics change". At the next step are those interested in self-improvement and willing to study independently, many of whom are interested in the acquisition of information for its own sake. Here too, television can be used to provide support to other learning materials.

Next come those who want to acquire basic skills, mostly adults interested in acquiring literacy skills. Further on are those who would like to equip themselves for employment, and avail of career-vocationaltechnical training. These two levels require more interpersonal support than can be provided by television alone. Contact with instructors and group meetings either in person or through audio conferencing, are necessary. As
explained by Pacey (1988) "... as we move to the middle (of the triangle) we know that audio conferencing has worked, but if this can be enhanced with computer conferencing and computer managed learning, this will enhance the delivery).

Then come the university under-graduate studies and graduate/professional development programs. Persons at this stage are capable, and motivated enough, to undertake independent study, but they also need greater detail of information and the possibility of interaction and discussion with fellow students and instructors. "... at the higher level .... the use of audio or computers exclusively" is possible. "The use of television is lessened; on the other hand, the concept of the talking head would work well (rather than high quality television) because they (students) want only the content and do not need to be visually stimulated to the degree that students at the lower rung need" to be.

These six stages, or steps in the educational ladder, have been divided into three spheres of responsibility, beginning with the Knowledge Network for the first two. the Open College for the next two, and the Open University for the last two. The stages also correspond to the technologies in use, beginning with television, going on to audio conferencing and telephone tutorials, and further to computer conferencing and computer-aided instruction.

As given in the Programming Policy, the broadcast day is divided into half, 50% for general public programs and 50% for educational institutions' (or curriculum-based) programming. This division is applied to the programming for the whole year at the time of planning the schedule; thus, while the half-and-half division is adhered to for the year...
the day-to-day division depends on the learning seasons. During the learning period of Fall and Spring, curriculum-based programming is about 75%. During the Summer semester, however, this is much reduced, to about 10%, and the Network has to fill in the rest of the space during the year. (Pacey, 1988).

The three learning seasons, of seventeen weeks each, correspond to the universities' and colleges' semesters: the Fall semester from September to December, the Winter/Spring semester from January to April, and the Summer semester from May to August.

Under the Open Learning Agency, Planning Councils have been created for each of the three components. These Planning Councils consist of members of the lay public appointed by the government to represent the public interest.

The Agency acts as a catalyst and collaborates on a province-wide basis to ensure that there are no redundancies in the programs provided. It also guides the optimum utilization of resources. The Planning Councils handle the institutional requests for the scant available resources. General education programs are placed through the Planning Council of the Knowledge Network; educational programs that are course-related are placed through the Open University or the Open College Planning Councils as the case may be.

The Knowledge Network prepares the recommendation for an annual program zone which it puts before the OLA Board. Once this is approved, it becomes the guideline for the planning councils to decide what they want to do with television or other technology.

The Network's decisions about programming are made under the two broad heads of curriculum-based programs and public education programs.
CURRICULUM BASED PROGRAMMING

Curriculum-based Programming is provided by the educational institutions for broadcast on the Knowledge Network according to their needs, based upon which they submit proposals for broadcast to the Network.

Administration:

Proposals for acquisition or production of curriculum-based educational programs are approved by the planning councils of the Open University or the Open College, depending on whether the course is at the university-level or the post-secondary college level. Approvals are made on the merit of each project, whatever its medium of delivery: thus, there is no fund separately allocated for television programs; rather they are weighed along with course programs with other media of delivery as well.

Each educational institution that wishes to use television can select a program series that provides supplemental or mandatory support to certain courses, and should ideally make its own arrangements for acquiring the tapes for telecast, since it is the educational institutions and not the Network that have the funding for this purpose.
However, sometimes the Curriculum Programming department of the Network has to do the legwork once the institution has identified the program series. It is easier for the Network to obtain broadcast rights than it is for the educational institutions, and hence the contract is usually signed between the Network and the particular distributor/producer. The institution makes the payment through the Knowledge Network. Therefore, the Network acts as the 'holder' of the rights for the educational institutions. (Blythe, D., 1989).

The Network has a formal Program Proposal form which the institutions complete and submit in requesting for air time. There are three versions of this form: 'A' for the first-time request, 'B' for the repeat telecast request, and 'D' for subsequent repeat requests for the same program series. Specifications about the program type, title, learning season, institution, episodic information, copyright specifics, production and scheduling information are required.

The proposals are "reviewed, scheduled, and submitted to the Board for approval." (Letter from the Manager, Learning Design Services of the Network, to North Island College, 24.9.85).

The three main types of programming provided by the Network to educational institutions are:

1. telecourses
2. teleseries
3. interactive television programs.

The telecourses and teleseries are a series of programs under one main subject area, and usually run for a given period of time. Telecourses are program series which are related directly to a given course of an educational institution. The programs in a
telecourse often provide essential content to the main course and therefore could be mandatory viewing for registered students. Teleseries are program series which are sponsored by an institution but need not be related to any course, and even if they are, they provide only optional support viewing and general interest content.

Telecourses and teleseries are usually supported by other media and materials. These materials are usually prepared by the individual institutions and mailed to their registered students in the particular courses. They could include print packages consisting of a course manual, study guide, textbook/s, readings, etc., audio tapes, slides, video tapes, laboratory kits, etc.

The Network offers a service to the general public through the auspices of the Knowledge Network Bookstore, which provides audio tapes, video tapes, and print materials in support of its telecourses and teleseries. While this is a public service venture, the covering cost of the material is charged. The Network is "moving towards providing a short print package explaining (the various) teleseries" (Pacey, 1988); such material will give viewers information to back up the content of the television programs.

Interactive television programming is used a lot with community groups. Non-profit groups may come to the Network requesting a program that allows for viewers to phone-in during the telecast of a program to ask questions and make comments. As part of its mandate, the Network has a responsibility to provide this facility for general public awareness. Groups like the Arthritis Society, the Cancer Society, and government ministries like the Ministry of Environment have as one of their goals the education of the general public about various issues. "Interactive television is a very powerful" tool to create such awareness. (Pacey, 1988).
For the purpose of such interactive television, the Network uses the existing television distribution system. The programs originate from the Network's studios, and the call-in phone number is announced during the program. A telephone bridge in the production control room takes viewers' calls and transfers them into the studio for the hosts/experts to listen to and interact with. Such "live-on-air" programming has been utilized both for general interest programs, where often a panel of experts, after a discussion, takes questions from viewers, and for course-related programming, where the host-instructor takes viewers' questions after delivering course content in the program.

For scheduling purposes, the time slots available for curriculum-based programming are divided into five groups, as follows, from which the institutions can make a choice:

1. Time slot 'A': Mon-Fri: 7 - 8 p.m.
2. Time slot 'B': Mon-Fri: 5:30 - 7 p.m.
3. Time slot 'C': Mon-Fri: Noon-3 p.m.
4. Time slot 'D': Mon-Fri: 6:30-8 a.m.
5. Time slot 'E': Sat-Sun:10 a.m.-4 p.m.

Since the 'A' slot is the closest to the primetime hours of 8 p.m. onwards, the newer programs are usually put in here, i.e. the targeted telecourses like Nursing 402. Once they have run in this slot for a season or two, a telecourse may be moved to another time slot, as it is also assumed that much of the target audience for that course has already availed of it.

The morning slot of 6:30 a.m. is where many of the courses that are likely to be video-taped by students are inserted.
Under curriculum-based programming, which is primarily for postsecondary institutions, the schools programming is a separate substructure, since it is also "educational" and sometime some of its programming for high schools could be viewed by college students.

The Network provides access to good quality programs in the educational area; however, it has tended to lean heavily on acquired programs, particularly from the BBC and Australian producers. The Network is not able to use much material from the USA, since such programs are aired by the PBS stations there. Hence, "we are quite limited in what .... can be broadcast on the Network. The problem is that anything that has been around that is good, we have already broadcast, and most of the newer (programs) are very expensive, so that could be an increasing problem as provincial funds start to burn out, trying to replace the inventory" (of programs). (Mitchell, E., 1989).

Program Production:

Since the Network was viewed primarily as a delivery system during its first years, a carrier of educational programming rather than a production house, very little provision was made for production facilities. However, for the purpose of live-interactive sessions, where the host-instructor opened up questions to viewers through call-in telephone lines, there was need for a studio and basic production equipment. Technical staff were required. Moreover, it was also discovered that there was a need for local-based productions to contextualise issues. Besides, it was difficult to fill the whole programming day with acquired programs alone.

For these reasons, from the beginning, production staff were hired and basic facilities made available for educators desiring to produce their own programs. Since the mandate
has now (OLA Act of 1988) been expanded to include programming initiative, the Network proposes to do more production of its own.

Three full-time program directors are employed by the Network to meet its production needs. Freelance producers are hired if necessary. Educational institutions which plan to produce a complete original series usually hire freelance producers on their own.

The types of production formats undertaken by the Network can be listed as follows:

1. Live-on-air studio-based lessons with phone-in interaction
2. Pre-taped segments for inserts in live-on-air lessons
3. Pre-taped studio lessons
4. Documentary format for telecourses
5. Local host 'wraps', or introductions, for acquired programs
6. Short programs - fillers, B.C. Moments, B.C. Lifestyles, etc., usually in docu-drama format.

The allocation of production responsibilities between the three directors is not fixed and depends on the current nature of production requirements. At the present moment, production is divided as follows:

1. Bernie Motut, television director, responsible for the production of the ECCAD programs.
2. Dan Moscrip, television director, responsible for the production of North Island College's live interactive programs, and for other live interactive programming.
3. Dave Billman, television director, responsible for the production of non-curriculum based programming like B.C. Moments etc.
"As the provider of the telecommunications system (in B.C.), the Knowledge Network is as the hub of electronic (state of the art) distance education activities in the province. These systems include satellite-to-cable television, radio (pilot), closed-circuit video teleconferencing, and telephone based audio conferencing, telewriting, and computer conferencing." (Mitchell, E., 1988a).

The Operations Department is responsible for Technical services, Production services including the work of the full-time TV directors, educational programming, promos and B.C. Moments, audio production especially tapes for course materials, and telecommunications applications like the teleconference bridge, telewriter system, and other new systems currently under development.

The Network provides the following services to the public and educational institutions:

1. The educational television network

2. An audio-conferencing bridge which is available to the entire system, i.e., to all educational institutions. The bridge is operated by the Network on an "as needed" basis. It is a subsidized service for the system. The Network also has the capacity to enhance this system with computer conferencing and the use of a telewriter system.

3. A production service for both television and audio production. Production staff are available to client groups or institutions and to the Open Learning Agency’s various departments which are involved in course development or the development of products that require either a television or an audio component.
The Television Network:

For its television services, the Network leases transponder space on Canada's Anik C1 satellite. Anik C is a 12/14 Ghz device owned by Telesat Canada. The service is on a regional spot beam that covers approximately 1/4 of Canada. The Network signal is usually received at cablevision head-ends and redistributed to all cable subscribers as part of the overall program mix. "This delivery model is extremely cost-effective because the satellite-to-cable model eliminates traditional television transmitters and all associated capital and operating and maintenance costs." (Mitchell, E., 1988a). Hence, the Network does not have its own broadcast transmitters like TV Ontario and other educational broadcasters. Since British Columbia is the most heavily cabled area in the world, most households rely on cablevision systems for the delivery of television and FM radio signals. Hence, the Network has a satellite transmission dish which beams its programs to the Anik C3, from which the cable companies downlink the programs.

From April 17, 1989, the uplink of the Network shifted from the satellite Anik C3, to which it was uplinked for a number of years, to Anik C1. To facilitate the cable systems and individual receive dishes to adjust to this change, the signal was provided on both the Anik C3 and the Anik C1 from April 17 to May 30. After May 30, the signal is received from Anik C1 only. The link to the C1 satellite will be for one year, and in Spring 1990 it will move to Anik E1.

The Network delivers 5,760 hours of programming per year, operating its public television service 16.5 hours per day. As mentioned earlier, (See Background) the Knowledge Network was originally created to deliver educational programming rather than to produce educational programs. This has changed now, because the OLA Act of 1988 has given a programming mandate to OLA and the Network.
Production Facilities:

"Earlier, the production facilities were very primitive." (Harrington, 1989). The production experiments began with taping a live classroom lecture in realtime, and inserting a slide on the screen while the class took its coffee break. This format of "live" mode meant a large investment in studio time, with no returns. Today, it is possible to condense information and shots, have better graphics, and use the medium efficiently. The use of Electronic Field Production equipment to record interviews, and teleprompters to aid hosts during studio recordings, has helped raise the expectations of the audience. (Harrington, 1989).

The production facility of the Knowledge Network is presently housed in the basement of the Biological Sciences building at the University of British Columbia, Vancouver, where it moved to in 1980 from its original BCIT premises. This move was successfully made partly because the then president of the Network was also a professor at UBC.

The Supervisor of Operations, who operates from the UBC site, is in charge of scheduling the use of the facilities and the services of the production crew, maintenance, the satellite signal, and production personnel.

There are fifteen full-time staff at the UBC premises. Two persons in the studio handle cameras and lights. Most of the production crew - the camera persons, the floor director, the sound mixer - are hired on a freelance basis. Many of these have been associated with the Network for a period of time. The Network has five editors, who work on a rotating eight-hour shift, two editors in each shift. Four persons work in the master control room. The working hours of the master control room are from 6:30 a.m. to 11:00
The production staff work in cooperation with the producers. Studio staff attend production meetings are accompany producers on location shoots. However, the editors have no input in the production process prior to the editing stage. (Potter, 1989).

The facility at UBC consists of:

1. One studio, 22' by 25', which is equipped with a lighting grid and where two different sets can be constructed semi-permanently. There are three studio cameras which were acquired recently, and are a great improvement on the cameras they have replaced which were outdated and did not allow optimum quality production. (Potter, 1989).

The basic equipment in the production studio consists of:

1. Cameras - 3 Ikegami 323 with Vinton 3 stage pedestals and Fujinon 18x8 lenses
2. Switcher - Ross 10 input with downstream keyer
3. Audio - Ward Beck mixer 12 input - 4 output
4. Lighting - Dilor C-3624 24-channel control board
5. Character Generator - Chyron Scribe

2. A Production Control room, which houses the camera switcher and monitors, the character generator for live productions, the sound mixer, and the telephone bridge that receives calls for the live-interactive programs.

3. The Master Control room, where the three machines that load the satellite uplink feed are situated. The basic equipment here consists of:

1. VTRs - 3 x Sony BVH 1100 1 inch machines, one Sony BVU 800 3/4 inch Umatic with TBC
2. Switcher - Central Dynamics 8 input, audio follow
4. The VTR/Editing room, which contains one post-production suite for 1" and 1/2" betacam. The basic equipment consists of:

1. Dubbing:
   a. 2 x Sony BVH 1100 1" VTR machines
   b. 1 x Sony BVU 800 3/4" Umatic with TBC VTR machines
   c. 2 x JVC 1/2" VHS machines
   d. Editing:
   e. 2 x Sony BVH 2000 1" VTR machines
   f. 1 x Sony BVH 3000 1" VTR machine
   g. 1 x Sony BVW 65 Betacam playback machine
   h. Editor: Sony BVE 3000 edit controller
   i. Ross 210 switcher

5. A room that houses the computer graphics equipment.

6. A library space to house the one-inch tapes.

7. The Technical Department which is the maintenance section.

8. An office room which houses the BRAP computer, the beta tapes library, and some of the technical staff.

9. The basic equipment for field production consists of:

1. One camera Sony BVP 3 three-tube camera with tripod, zoom lens and wide angle lens
2. One Strand portable lighting kit
3. Audio: three Tram Lavallier microphones, one Sennheiser 420 shotgun microphone, two Electro Voice hand-held microphones, and one Shure FP 31 four-input stereo
mixin.

For sound editing and special effects, the Network sometimes rents outside facilities.

Sets for studio productions are usually simple and flexible, since there is not much space for their storage. The studio has flats (which are used as wall pieces), plants, tables, chairs, desks. Sometimes, if the production requires more elaborate sets, they are rented on a one-time basis.

The use of the studio is greatest during the two main learning seasons, i.e., from September to March. This is the period when several educational institutions go live-on-air with their telecourses. (For example, North Island College's Sociology, Psychology and English courses, courses on Ambulance Driver training, Red Cross training, Firefighter training, Dyslexia information, etc.). During the months of summer, some of the outside shooting is accomplished.

The facility at UBC also handles the ordering and shipping of tapes from outside producers. This is a vital responsibility since most of the broadcasts for general public programming fall into this category. A video library for this purpose is maintained in the office room.

The installation of the BRAP computer for communication between the UBC facility and the Network's offices at the Turf Building in downtown Vancouver has greatly helped to facilitate the conveyance of the daily log (for programming). The log is put together at the Turf Building one day before the telecast of the programs. While the programming schedule is prepared for each season, the promos and other filler programs are inserted into the schedule at much shorter notice, and may change at the last moment, requiring a last moment change in the day's telecast.
Concerns:

Some of the concerns regarding the production facilities are:

- the lack of space and the need to modify available rooms
- the need to keep productions simple
- budget is sometimes a limitation in production; sometimes, the costs of production are not realised by course designers
- the need to use television more effectively; the program managers are not experienced in television production, coming mostly from educational institution backgrounds, and the television production staff do not have much experience with educational programs - there is therefore a need for a middle road which would address the concerns of both education and television and produce better educational television.

Other telecommunications-linked systems developed by the Network:

1. Teleconferencing: The Knowledge Network has developed a telephone-based telecommunications network that provides audio conferencing capabilities to various learning centres in the province. A Darome twenty-port bridge "allows users to conduct seminars, tutorials, or instructional sessions in conjunction with, or separate from, programs offered by television and print. By 'piggybacking' on the provincial government toll-free telephone lines, users of teleconferencing can reach 90% of the province without incurring long distance charges." (Mitchell, E., 1988a). Operational since 1984, this service has been used for courses by the University of British Columbia, Simon Fraser University, University of Victoria, and Northwest Community College. "In 1987, over 3,348 British Columbians took part in 436 audio teleconferences using the Knowledge Network service." (Mitchell, E., ?)
A 'site' for the audio conference could be an individual, a small group, or a large group. Participants can either call into the Knowledge Network bridge or the bridge operator can call out to participants. Once each site is ready, the bridge operator links the lines together and the class can begin. Participants use either a speaker phone or a speaker box and microphone set that plugs into an ordinary telephone jack.

The agreement made by the Network with B.C.Tel. for this facility is restricted to training and educational use. Line rental fees for business and other conferences is much higher than for educational purposes. The government toll-free lines become available for educational use from 4:00 p.m. onwards, and the Network has use of them from Sunday to Thursday every week. Bookings (by institutions wishing to use the conferencing facilities) have to be made four months in advance. The Network provides the institutions with taping facilities for their conferences.

At present, there are 12-16 regular users, including the distance education courses of universities and colleges. The busiest time for the conference bridge is from September to early December, and again from mid-January to April, i.e., during the two main learning semesters. (Van Soest, 1989).

2. Telewriter systems: In 1986, the Network began exploring the distance education potential of three 'audio plus' technologies: the Optel Telewriter II PC, Telesketch, and Colorado Video Slo-scan. After a brief study, the Network chose the Optel System for future projects. Since February 1987, the Network has been piloting the use of the Optel Telewriter II PC system (which acts as an 'overhead projector' for distant students) when

a) BCIT used the system to teach a session on accounting spreadsheets to students in Merritt;
b) University of Victoria tested Optel in a computer programming tutorial;

c) Northwest Community College used the Optel for three months in their off-campus Adult Basic Education program.

d) In 1988, the Network undertook an experimental project with the Correspondence and Distance Learning Branch of the province to link the Optel telewriter system with audio conferencing to provide a visual element to students at remote learning centres in Prince George, McBride, and Chetwynd. This field test found that the Optel system was not easy to use. However, this may have been "because the limitations were mainly due to the choice of hardware and the design of the software. Even with its shortcomings, its use was most valuable to the two correspondence students. The system does hold considerable promise for educational use, but its real potential will only be realised with certain modifications to the system". (Kishor, 1988).

The Optel Telewriter consists of an IBM PC, an electronic writing tablet and pen, and a modem that allows students and instructor to talk and send data, graphics, and writing simultaneously on a single ordinary telephone line. The writing tablet currently available with the Network provides an option of three different colours, and two degrees of line thickness. Once the Network's teleconferencing bridge operator connects the class (i.e., various sites) together, interaction can begin. The operation of the telewriter was demonstrated to distance education course tutors in March 1989.

3. Video teleconferencing: A closed-circuit dual 450 Mhz cable system links twenty sites in the Greater Vancouver area. This cable system allows the Network to receive and redistribute video teleconferences available from outside the province and provides especially those in the health care community with the opportunity to develop professional
development sessions and to make these available via the closed-circuit system and satellite to groups meeting at sites throughout the province or beyond. (Mitchell, E., 1988a).

4. Educational radio: Recently, (late 1988) five post-secondary institutions and the Network formed a task force to explore educational radio. The institutions identified a need to provide updates of televised course content swiftly and without the expense of changing a packaged video program. Since radio can reach the same audience as television, it is a cost-effective alternative to updating television content.... As a pilot in Spring 1988, the Network arranged for broadcast time on an existing radio service and coordinated the program offerings of the participating institutions.

5. Further use of the satellite transponder: It is hoped, according to Pacey (1988) "to take advantage of the satellite for more things (telecommunications operations) like audiocomputer conferencing .... " E. Mitchell (1988a) also states that there is need for the Network to focus on greater utilisation of the satellite transponder. Some of the ways in which this is being done are given below, as described by E. Mitchell (1988a).

- Currently, four audio subcarriers are sub-leased to distribute commercial radio signals, while the other half of that capacity is being held for future educational purposes.

- Recently, sloscan video inserted in the vertical blanking interval of the television picture was successful in showing how course-related visuals could be transmitted throughout the province. Sloscan delivered in this way can be course-related on one line of the vertical interval while the delivery of up-to-date telex weather information is carried on a fee-for-service basis on another line.

- the Network is participating in field trials of Microtel's Pacific DS 1200 VSAT (Very Small Aperture Terminal) unit. The DS 1200 utilizes "Band-Edge" technology that
allows for the insertion of two-way data into the existing satellite transponder capacity. Again, an additional service is being carried within the existing spectrum so that operating costs are only incremental in nature.

The Second Channel The Knowledge Network, in collaboration with the Open Learning Agency, the B.C. Science Council, and in cooperation with industry representative, the universities, and BCIT, is planning to put in place a second, narrowcast channel to serve learning centres with the facility of transmitting messages and interactive programs of an educational nature. This activity will be undertaken as an implementation of Purpose #5 of the 3 Year Strategic Plan of the Open Learning Agency, which is "to operate one or more broadcasting undertakings devoted primarily to the field of educational broadcasting", under whose second objective one of the activities is to provide for the expansion of the use of communication networks for the delivery of open learning programs.

This second channel will be based on the participation of educational institutions and business and industry training centres, who will have to put up a satellite dish to receive the transmission. The channel will provide educational programming based on the needs of these participating institutions. It will thus provide for a sharing of programs between the universities and colleges as well as private business and industrial training centres.

Though the other educational telecommunication organisations in Canada carry an off-run redistribution microwave system, the Network "has no intention of doing this," (Pacey, 1988) because B.C. is heavily cabled, (i.e., the Network is available on a cable channel in almost all areas of the province,), and also because the B.C. government has put in place a grantsmanship program (PEETS - the Provincial Education & Entertainment Transmission Service) whereby small communities like that of the Gulf Islands (of 2,000
persons or less) can establish a non-profit society and apply for funding to put in a redistribution facility (a satellite-receive dish) in their community. There are already 70 such communities in the province, and other applications are awaiting approval.
THE KNOWLEDGE NETWORK AUDIENCE

The Knowledge Network audience can be divided into two categories:

1. the general public viewers, and
2. students registered in distance education courses.

While it may be possible to identify the latter category of audience for purpose of specific study, data on the general public viewers includes registered distance students in the general audience.

The Network compiles data on its viewers through three mechanisms:

1. The Public Affairs department of the Open Learning Agency, responsible for contact with the Networks' publics, receives data on general viewership from ratings companies like A.C.Nielsen Co. of the USA and the Bureau of Broadcast Measurement of Canada. This department also administers the Partners in Open Learning project, which seeks out individuals interested in contributing a fixed sum to the Network in return for regular information about its activities.

2. The Marketing Department of the Open Learning Agency is responsible for contacting educational and other institutions interested in using the Agency's facilities. In December 1988, the department mailed the OLA brochure to 13,600 post-secondary institutions in North America. The mailing included a return card inviting the institution to ask for more materials in the various subject areas listed. (See Appendix for sample card). Upto now (April 1989) 6.7% of the institutions have responded.

3. The Program Services section of the Knowledge Network is responsible for answering viewers' questions by mail or on the telephone. The telephone lines are open to viewers during working hours for this purpose; during the rest of the day, an answering
machine records viewers' calls, and the individual responsible for this service returns the call as early as possible depending on the number of calls to be returned.

4. Another source of audience feedback, from registered distance students, is the evaluation questionnaires sent out by individual institutions about their telecourses. Besides these, individual research projects reveal information as and when they are conducted.

The Ratings The Network receives ratings' results on a regular periodic basis from the A.C. Nielsen Co. and from the Bureau of Broadcast Measurement. The Nielsen Co. supplies its ratings book twice a year for the smaller B.C. markets, and seven times a year for the Vancouver market.

Currently, according to the February figures, 600,000 viewers were watching the Network per week. "This is about an increase of 10% from a year ago. The viewership has been growing about that amount every year, for the last three years. The better watched programs are the National Geographic specials and the Miracle Planet series. The latter averaged 80,000 to 100,000 viewers." (Mitchell, G., 1989).

According to the Director of Public Affairs, "we sort of stopped drawing a difference between students and viewers, we think of everybody as a kind of student. We cannot be sure if they are watching for a formal or an informal purpose......But there is a list of all the programs that people have watched, and so if there is a psychology course that has an audience we can be relatively certain that most people who watched did so for the content for the formal purpose, but may be not. .... It is hard to know when you start out who you are actually going to end up with". (Mitchell, G., 1989). According to the Nielsen Index, the Knowledge Network has a 21-25% share of the viewership in British Columbia.
The Nielsen figures for the Network’s viewership are corroborated by the figures of the Bureau of Broadcast Measurement. The BBM provides viewership figures on a regional basis. Though British Columbia is supposed to be the most heavily cabled area in the world, viewership sometimes also depends on how well-established the cable service or off-air repeaters and transmitters are in a region. Every cable company may not have complete penetration of the region it operates in. There also may be seasonal variations in viewing habits, for example, during the summer months overall viewership may not be as high as during the winter. However, the Network’s growth in viewership “has been encouraging”. (Mitchell, G., 1989). BBM figures also depict a 20-25% share of the total television viewership in the various regions of the province. (See Appendix XVI for detailed figures).

**Program Services Section:** Program Services at the Knowledge Network is responsible for receiving and answering viewer enquiries and comments. The data collected by the Program Services section on viewers is tabulated monthly under the following heads: Viewer Calls per day per week; Caller’s Choice requests, i.e., requests for repeats of particular programs; Viewer Follow-up i.e. additional information requested by viewers; Programs Suggestions i.e. viewers’ recommendations of programs they would like to see on the Network; and a list of the programs generating 3 or more calls.

For the period May 1988 to April 1989, viewer calls were as follows:

These figures show a slight decline in viewers' calls during the summer months of 1988 and also during November/December. Whether this can be related to any particular habits of viewers, especially the student who might take a vacation during the summer and be busy with examinations during Nov-Dec., and also whether it is related to fact that during these periods the curriculum-based programming is at a low ebb, is debatable.

The list of programs generating 3 or more calls may indicate the popularity of curriculum-based programming to an extent. For the period May 1988 to April 1989, we could chart the number of programs generating calls as follows:

May 1988 - 20 total, 6 curriculum-based
June 1988 - 21 total, 5 curriculum-based
July 1988 - 14 total, 4 curriculum-based
August 1988 - 20 total, 5 curriculum-based
September 1988 - 32 total, 17 curriculum-based
October 1988 - 20 total, 6 curriculum-based
November 1988 - 28 total, 6 curriculum-based
December 1988 - 20 total, 12 curriculum-based
January 1989 - 28 total, 10 curriculum-based
February 1989 - 26 total, 12 curriculum-based
March 1989 - 28 total, 7 curriculum-based
April 1989 - 23 total, 9 curriculum-based

Telecourse student survey: In 1984, The Knowledge Network conducted a survey of its telecourse viewers in conjunction with the Instructional Telecommunications Consortium, a special interest group of the American Association of Community & Junior Colleges. The Network received 1,079 valid responses from students enrolled in 20 institutions.
The Network's student viewers were nearly equally split between men and women. Ages ranged from the 40-49 group (22.4%), to 30-39 (31.7%) and 18-29 (19.3%). Most of the found out about the course they were presently taking through the Knowledge Network newspaper (35.7%), the respective college/university brochure (21.3%), or the KNOW promo (12.9%) or newspaper advertisements (12.2%). Their most important reason for enrolling was that they prefer home learning (28%), that no local classes were available (18.7%), that they wanted to use the Network (19.2%), and the regular classes conflicted with their work schedule (17.8%). Most of them viewed the broadcasts at home (88.1%).

Independent Research
An independent study was conducted by Michael O'Neill in 1989 on the responses of Open University students to telecourses. He conducted telephone interviews with 134 students. The researcher categorized the students into completers and non-completers (i.e., those distance students who completed the course and those who did not complete). He analysed their verbal responses thematically. This study found that the non-completers were interested in getting "help" from the telecourses in the completion of their studies, whereas the completers emphasised the potential for increased learning through other media like television. The subject taken by the students also seemed to affect their responses; according to this study, students of the English course were not very keen on the use of non-print media, whereas the students in the Psychology course were enthusiastic about using their telecourses and preferred the multi-media approach to distance education.

Institutional evaluations
The evaluation questionnaires sent out by the various colleges and universities to their students yield data about the viewership of the curriculum-based programs. The institutions which have gathered such data are:

1. University of British Columbia UBC Access
2. Simon Fraser University DISC Courses
3. North Island College
4. Emily Carr College of Art & Design
5. (The Open Learning Agency compiles data on grade distributions and completion rates for all its courses, but this does not yield data on student reactions to telecourses).

**UBC Access Evaluation Report**

Evaluation forms are sent out to students towards the end of every course. The data is analysed on a statistics package on computer.

The Evaluation Report for 1988 gives an idea of student background and attitudes towards television programs (among other modes). Of the 558 students who returned completed questionnaires, 27.2% (152) were men, and 71.7% (400) were women. Their age varied widely from 20 years to 50 years and above. The largest geographical group location was Greater Vancouver (37.6%). A little less than half (41.2%) were teachers; the other substantial occupational group were the nurses (10.6%), students (15.2%), and others (14.2%). Those students whose courses included television components were generally in agreement with statements favouring the use of television in courses; however, they "agreed" rather than "strongly agreed" with the statements. Nearly half of them (46.2%) preferred to view the programs on a video cassette recorder rather than at the time it is broadcast (16.2%); 37.5% preferred both/either viewing modes. (See Appendix XVII for details).

According to evaluations done by the Distance Education Office of the Faculty of Education, face-to-face education is still the most preferred method of delivery (95%). Four percent of their distance students would like video programs for content delivery. Only a
very small percentage opted for print as a form of delivery. (Neufeld, 1988).

**Simon Fraser University's DISC Courses Evaluation**

The Centre for Distance Education at Simon Fraser University sends out a questionnaire to its registered distance students for all its DISC courses. This questionnaire includes a section on student reactions to the television support for the relevant DISC courses. The returned questionnaires are sent to the respective course directors. However, data was not available from these directors at the time of this study. (See Appendix VI for sample questionnaire).

**North Island College Telecourses Students' Responses:**

A telephone questionnaire study was conducted for Psychology 120. 17 of the 20 student respondents said they saw all of the programs. One saw 95%, another missed two or three, and another saw 30%. Nine students taped all or several of the programs. The course component they learnt most from, however, was the textbook, with 10 students (50%) picking this material as against seven stating it was a combination that was effective. But in terms of the component they most enjoyed, eight students picked the programs, and two the textbook; two chose a combination of the programs and the textbook. When asked what they like least about the course, no student mentioned the programs. Some responses on why students enjoyed the programs were:

"I had more fun with the TV programs. They were definitely more interesting, a little bit more personal than the textbook."
"The text was nice but I enjoyed the lectures with Dr. Catchpole more, more personal. It's better to have him talk about it than to always read."

"The class. That they were live was almost like going to a lecture."

"Manuals are mandatory. The telecourse cleared up any questions I had. Never had to phone in because any questions I had were always covered and cleared up."

However, one student did not like the phone-in segment: "The call-in. It annoyed me. I'm not good at talking on the phone. I would have enjoyed talking to someone in person ...."

For the course on Effective Study Techniques, a course evaluation questionnaire was mailed to students. Nineteen students returned the questionnaire. Of these, twelve were women and seven men. Their ages ranged between 15 and 68 years. When asked to rank the course components very useful-quite helpful not much good, the Network programs were rated either very useful or quite helpful. Comments regarding the television component were both positive and negative. Positive comments were mainly about the instructor's manner of presentation. Negative comments were mainly about the phone-in segment of the programs. These were:

"I would prefer more TV time with the instructor, and the phone-in calls could come after the TV broadcasts, as many calls are not relevant to me."

"The TV programs had too many interruptions from people asking questions not related to the course .... "

" .... the phone-in section should not be longer. I would surmise that most taking the course or following the TV program are more interested in hearing from experienced
instructors than some ramblings of someone groping in the dark ...."

"The TV programs are extremely boring. The call-in calls should be restricted to registered students and should be restricted to course content and limited to three minutes maximum ...."

"Bit more time to copy down information shown on telecourses."

Student Comments on the English 120 telecourse during Fall 1985 were extracted and recorded in the Network's files. Fifteen comments were recorded, all positive. Some of these were:

"....Thank you for the care and thought that you have put in the telecast ...."

".... In fact, I predict it would be the most popular course over KNOW by quite a bit. ...."

"Today I watched your writing programme on the Knowledge Network, and am now very excited about the possibility of going to school in January '86 .... Until seeing your TV programme I had decided that any hope of study was impossible for me."

Emily Carr College's Telecourses' Students' Responses:

ECCAD conducted a questionnaire evaluation of its Mark & Image telecourse during the Spring 1989 semester. (See Appendix XIX for sample questionnaire). Of the 53 credit students and 5 audit students, 16 returned completed questionnaires. Most of them rated all the ten programs as "good" rather than "average" or "poor". (11 to 13 responses on good, 1 to 3 responses as average for each program, 0 to 1 response as poor - two students rated the first program as poor). Most students (15) read the printed text before
viewing the programs. Eleven students said that the course met their expectations.

An evaluation meeting was held on May 11, 1989, which some (nine: seven women, and two men) of the distance students were invited to attend.

This telecourse included a program where a nude model was used for the studio students; it generated some amount of negative responses from the general public as to the morality of showing a nude on television. However, the registered distance students did not have a problem with this.

Another aspect of the format, i.e., the use of on-camera students, created a problem for the distance students. These on-camera students had pre-researched their assignments and therefore were ready with their ideas for the shooting of the program. Moreover, each episode was shot over an eight-hour period and later edited to one-hour; by this, it appeared that the on-camera students accomplished their artwork with ease in a short period of time. This made the distance students feel discouraged about their own work. During the evaluation meeting to which some of the distance students were invited, it was suggested that the "best" students should not be chosen for the programs; however, the host-instructor said that the on-camera students were chosen not because they were the most talented but for their ability to concentrate and not be disturbed by the camera.

Most students said that they video taped the programs to be able to look at them again.

Some students preferred the format of "Colour: An Introduction", where the host-instructor lectures on camera and demonstrates some of the concepts himself. Such students said that they "found it confusing and unnecessary to watch other assignments in progress .... "

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Some students stated that they became "attached" to the on-camera students, as they would to characters in a television serial, and wanted more information about these students.

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