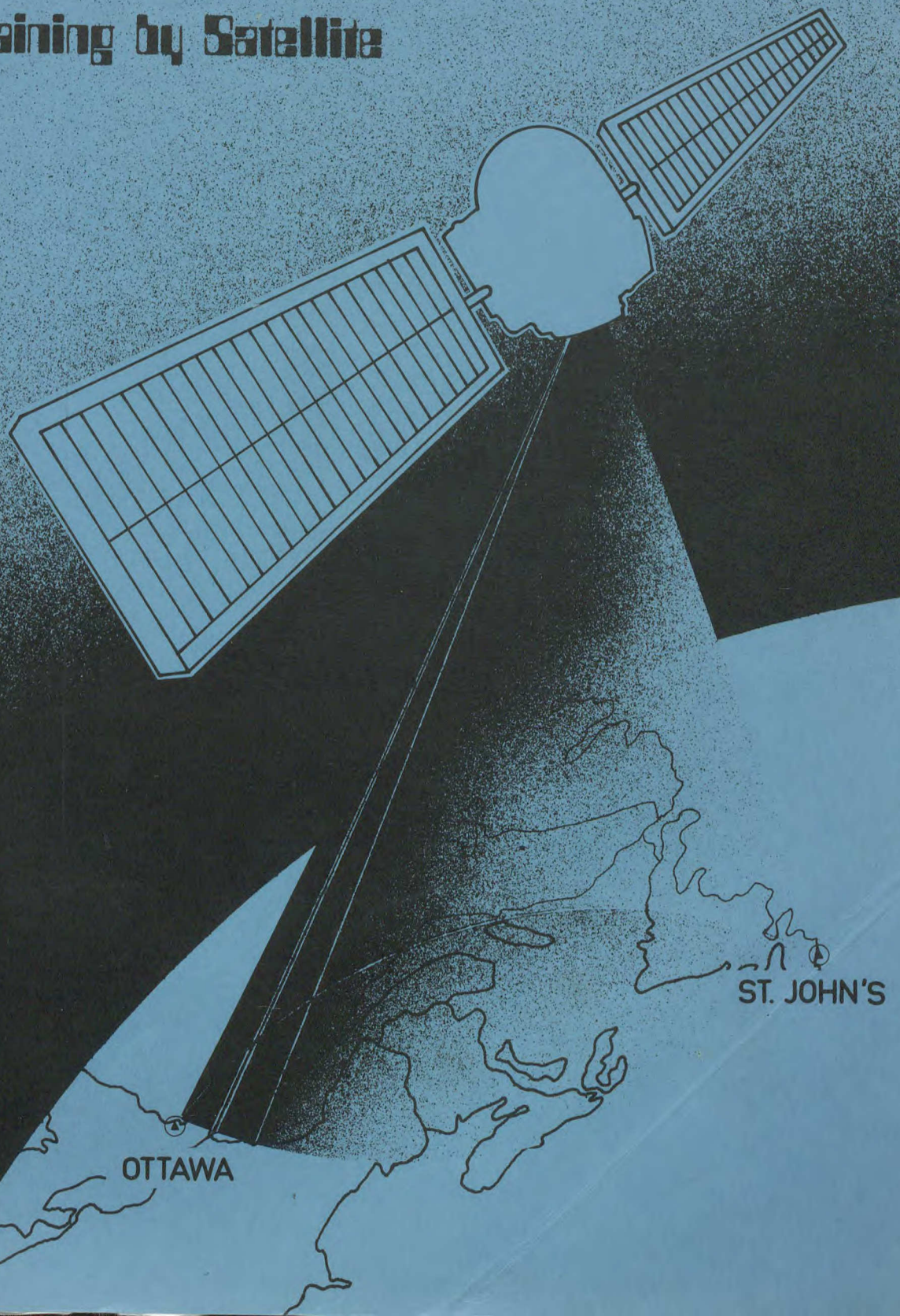


# Tele-Training for Personnel Development

## Staff Training by Satellite



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Public Service Commission

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TELE-TRAINING FOR PERSONNEL DEVELOPMENT  
STAFF TRAINING BY SATELLITE

by

Michael G. Ryan, Ph.D.

PROJECT LEADER

STAFF TRAINING BY SATELLITE

PUBLIC SERVICE COMMISSION OF CANADA

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The Tele-Training for Personnel Development series is edited and published by the Satellite Project Office of the Secretariat Services Branch, Public Service Commission.

The purpose of this series is to document and disseminate information about the design, implementation and results of the Public Service Commission's Communications Technology Satellite (CTS) Project: Staff Training by Satellite. The Communications Technology Satellite was made available for pilot experimental periods by the Canadian Department of Communications.

Michael G. Ryan, Ph.D.

Series Editor

Reports in this series are entitled:

Tele-Training for Personnel Development: Staff Training by Satellite

Téléformation pour le perfectionnement du personnel: Modèle théorique

Tele-Training for Personnel Development: Course Designers'/Directors' Report

Tele-Training for Personnel Development: Evaluators' Report

Tele-Training for Personnel Development: Technological Report

Tele-Training for Personnel Development: Telecommunication Research

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\* Special acknowledgement goes to Dr. George J. Jull of the Communications Research Center whose early work on interpersonal telecommunications served as the foundation for much of the work in this project.

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## FOREWORD

Tele-Training for Personnel Development: Staff Training by Satellite is the summary volume of the Public Service Commission experiment on the Communications Technology Satellite. The volume includes the executive summary of the project, the final report of the project, the project management report, and the project experimental plan.

The final report describes the accomplishment of the project objectives, the project findings, and its background. The section on project background treats the learning model, the course, the learning centers and the communication system. The conclusion and recommendations look to the future in light of experiences of this project.

The Project Management Report covers topics not treated in the five edited volumes accompanying this summary volume. These include participant recruitment, external liaison, and external satellite related activities of the project staff.

Finally, the PSC-CTS Experimental Plan, prepared to meet specifications of the Department of Communications, is a detailed description of the parameters and the entire project. This volume and the five companion reports indicate the manner in which the project successfully met the parameters of the experimental plan.

STAFF TRAINING BY SATELLITE:

EXECUTIVE SUMMARY

by

Michael G. Ryan, Ph.D.

PROJECT LEADER

## EXECUTIVE SUMMARY

On alternate days between April 24, 1977 and June 19, 1977, a five location audio-video satellite mediated communications link allowed remote learner centred management development between Ottawa and four locations in St. John's, Newfoundland. Two satellite mediated experimental groups a face-to-face control group learned the theories and skills of Long-range Planning. Learning was compared for experimental and control groups and the analysis failed to indicate any significant difference between satellite mediated learning and face-to-face learning.

The Staff Training by Satellite project was the only social experiment conducted by a Canadian federal government department on the Communications Technology Satellite and was unique from several perspectives:

- The project provided for the development of a student centred non-directive learning model for mediated learning
- to the knowledge of the authors, the project provided for the development of the first long-range planning course given within the Canadian federal government
- the project was one of the most interactive of satellite mediated experiments providing:
  - a five way audio-video
  - open microphone audio
  - a permissive communication environment
- the project tested the feasibility of multiple video image transmission by means of video multiplexing over one video channel provided by the satellite, Hermes



- the project was supported by a fully interactive learning simulation laboratory with four nodes and many laboratory findings contributed to the satellite project.

From a theoretical, educational, scientific and technical viewpoint the project was successful.

The evaluation highlights include:

- no significant differences in learning between face-to-face and satellite mediated learning situations
- a trend towards higher levels of satisfaction with the course and model in the satellite context than in the face-to-face context, although participants were quite satisfied with the face-to-face learning
- relatively positive attitudes towards the medium
- no significant differences in learning, satisfaction, attitude, or interaction levels for those who preferred a student-centred style, such as offered in the courses, to those who preferred a teacher-centred learning style.

These results are discussed at greater length within project reports.

The results of this project support a recommendation to continue pilot and semi-operational work in mediated-learning. Satellite systems are now available for pilot project use and the results obtained in such a project could easily be generalized to terrestrial communication systems upon which operational tele-education programs will probably involve in the short term.

STAFF TRAINING BY SATELLITE:

THE FINAL REPORT

by

Michael G. Ryan, Ph.D.

PROJECT MANAGER

## OUTLINE

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## 1. PURPOSE

The purpose of this final report of the Staff Training by Satellite Project is to:

- (1) demonstrate the accomplishment of the project objectives
- (2) summarize the findings of the project
- (3) describe the background of the project
- (4) provide conclusions and recommendations for future work in this area.

A description of the project objectives follows.

## 2. OBJECTIVES

The objectives of the Public Service Commission's Communication Technology Satellite Project, Staff Training by Satellite, were to:

- develop educational telecommunications as an educational tool, that is, from a one-way teacher-centred communications system to a multi-way learner-centred system
- explore, through the development of learning methods via satellite, new or improved methods of professional development for the public service
- investigate the possibilities of providing managerial or language training for public servants via satellite technology, thus, allowing them to remain in their home offices or home location while participating in courses
- study those aspects of human telecommunication which may en-

courage or hinder learning.

The Staff Training by Satellite project met each of its four objectives.

### 3. ACCOMPLISHMENT OF OBJECTIVES

The purpose of this section is to demonstrate the accomplishment of the project objectives.

The first objective of the project was to:

- develop educational telecommunications as an educational tool, that is, from a one-way teacher-centred communications system to a multi-way learner-centred system

To meet this objective, a non-directive learner centred model was developed. The model was custom designed for learning in an interactive mediated context (Lortie, 1976, 1977 a, b, c, d; Mendenhall and Lortie, 1977). This model provided the principles upon which this interactive learner centered-project was built.

The second objective of the project was to:

- explore, through the development of learning methods via satellite, new or improved methods of professional development for the public service



To meet this objective the student-centred course Long-range Planning in Government was developed in conjunction with the learners. Student involvement in defining the course topic, self-selecting for the course, developing the course and in teaching their peers was emphasized in accordance with the model (Barker and McCoy, 1977, a, b, c, d, e).

The third objective of the project was to:

- investigate the possibilities of providing managerial or language training for public servants via satellite technology, thus, allowing them to remain in their home offices or home location while participating in courses

To meet this objective special audio and video technology was developed to meet the interactive needs of learners. (Miller, 1977, a, b, c) The technology allowed learners located in five central locations in two cities, 1,000 miles distant, to take part in common seminars. The courses also allowed them to work and study at alternate periods during the week.

The fourth objective of the project was:

- study those aspects of human telecommunication which may encourage or hinder learning.

To meet this objective a highly active research program was carried on in the laboratory and in the field studying various aspects of remote learning. The results of these studies are available in published form (Jull and Mendenhall, 1976; Mendenhall and Lortie, 1977; Ryan, 1976; Ryan, 1977; Ryan and Mendenhall,

1976) and convention papers, (Mendenhall and Jull, 1976; Ryan and Craig, 1975; Ryan and Jean, 1977; Ryan and Mendenhall, 1975; Ryan and Mendenhall, 1976).

#### 4. FINDINGS

Students learn as well by satellite as they do in the face-to-face situation. This is the major finding of the project evaluation which included:

- (1) a cost-effectiveness analysis
- (2) a learning analysis
- (3) a satisfaction analysis
- (4) an interaction analysis
- (5) an evaluation of the learning session
- (6) an evaluation of the learning model

The results of each of these analyses are presented below.

##### 4.1 Cost-effectiveness Analysis

The cost-effectiveness analysis compared the cost-effectiveness of learning by satellite to learning in the face-to-face situation within the context of the project. According to the analysis, the courses given by satellite was more cost-effective than the course given in the face-to-face mode (Jarmasz, 1977 a). The implications of this analysis, however, are limited by two factors: (1) the cost of space and terrestrial technology is not included as costs of an experimental satellite are non-representative of operational systems and (2) the cost-effectiveness analysis compared

the costs associated with providing two courses by satellite to the cost of one course in the face-to-face context. Cost-effectiveness ratios might well change should these two factors be weighed into the balance.

#### 4.2 Learning

Three analyses of learning were conducted within the context of the project. The first compared learning over satellite to face-to-face learning, (Jarmasz, 1977 b) the second compared the learning of extroverts and introverts (Jarmasz, 1977 a), and the third compared the effect of preferred learning style on learning (Grygier and Mendenhall, 1977).

None of these variables affected learning.

#### 4.3 Satisfaction

The influence of the following factors on satisfaction was investigated:

- (1) preference for learning style
- (2) communication channel
- (3) video multiplexing

Overall, satisfaction with each course was quite high.

There was no significant difference in overall satisfaction among those who preferred student-centred learning and those who preferred teacher-centred learning (Grygier and Mendenhall, 1977). There was a significantly higher level of satisfaction among those who took the first course by satellite than those who followed the face-to-face course. However, there was no

significant difference between those who took the second satellite course and the face-to-face course (Mendenhall and Grygier, 1977). Finally, those who followed the course with the benefits of full video in St. John's were more satisfied and had more positive attitudes towards the medium than those who followed the course with the lower quality multiplexed video in Ottawa even though the general level of satisfaction in both locations was quite high (Mendenhall and Grygier, 1977).

#### 4.4 Interaction

The interaction analysis indicated a higher frequency of interaction in the face-to-face course than on the first satellite course. There is no significant difference between the two satellite courses or between the face-to-face course and the second satellite course (Mendenhall and Grygier, 1977).

#### 4.5 Evaluation of the Learning Session

An evaluation of the learning session was conducted and the participants rated the learning sessions quite positively. Participants evaluated the first satellite course more positively than both the face-to-face and the second satellite course. There was no significant difference between the face-to-face and second satellite course (Mendenhall and Grygier, 1977).

#### 4.6 Evaluation of the Learning Model

Participants evaluated the learning model quite positively and there were no significant differences among groups in their evaluation of the learning model. (Mendenhall and Grygier, 1977)

## 5. BACKGROUND

### 5.1 The Learning Model

The student centred non-directive learning model evolved for this project established normative principles and recommended consequent educator and learner roles (Lortie, 1976, 1977, a, b, c, d). The principles of the model hold that:

- man is self directing,
- man is oriented to solving real life problems in the form of self-directed projects,
- learning is individualized and inner-directed.

These principles led to the definition of roles for the educator and learner.

Within the context of the model the educator:

- is an animator and a facilitator
- is a resource on the content and the process of the educational session
- is a change agent
- promotes a greater awareness and personal growth
- assists learners through the various stages of their learning processes
- helps learners to take charge of their own training
- becomes a learner



TABLE 1

## SATELLITE EXPERIMENT TIME-TABLE

January 1977	April-May 1977	May - June 1977	
PILOT COURSE • 4 locations • closed circuit TV • 16 hrs over 3½ days • 16 federal public servants	SATELLITE COURSE • 4 locations in St. John's • 1 location in Ottawa • TV satellite link • 16 hrs over 4 weeks • 20 federal public servants	SATELLITE COURSE • 4 locations in St. John's • 1 location in Ottawa • TV satellite link • 16 hrs over 4 weeks • 11 federal public servants • 6 provincial public servants • 3 university administrators	CONTROL GROUP • 1 location in Ottawa • face-to-face • 16 hrs over 4 weeks • 20 federal public servants

Similarly, the learner:

- takes the responsibility for his learning
  - is responsible for determining his needs, goals and educational objectives
  - develops his skills for self-directed learning including greater awareness of needs, potential and interests
  - is an active inquirer
  - contributes his own resources to the learning activity
  - takes charge of his own evaluation
  - takes up the role of a resource person as appropriate
- (Mendenhall and Lortie, 1977, 46-47).

These roles complement each other and contribute to self-directed learning.

## 5.2 The Course

The Long-range Planning in Government course (Barker and McCoy, 1977, a, b) was given on four occasions within the context of the project, once in simulation, twice by satellite and once to a face-to-face control group (Table 1). The simulation occurred in January 1977, and the satellite/face-to-face courses between April 26 and June 19, 1977.

In compliance with the model a needs survey was conducted to allow potential participants to indicate their professional development requirements. The survey results indicated a need for a course in Long-range Planning and the course was developed with co-operation of eventual learners. These learners had been recruited by the project staff, Regional Operations and the Registrar's Office of the Staff Development Branch.

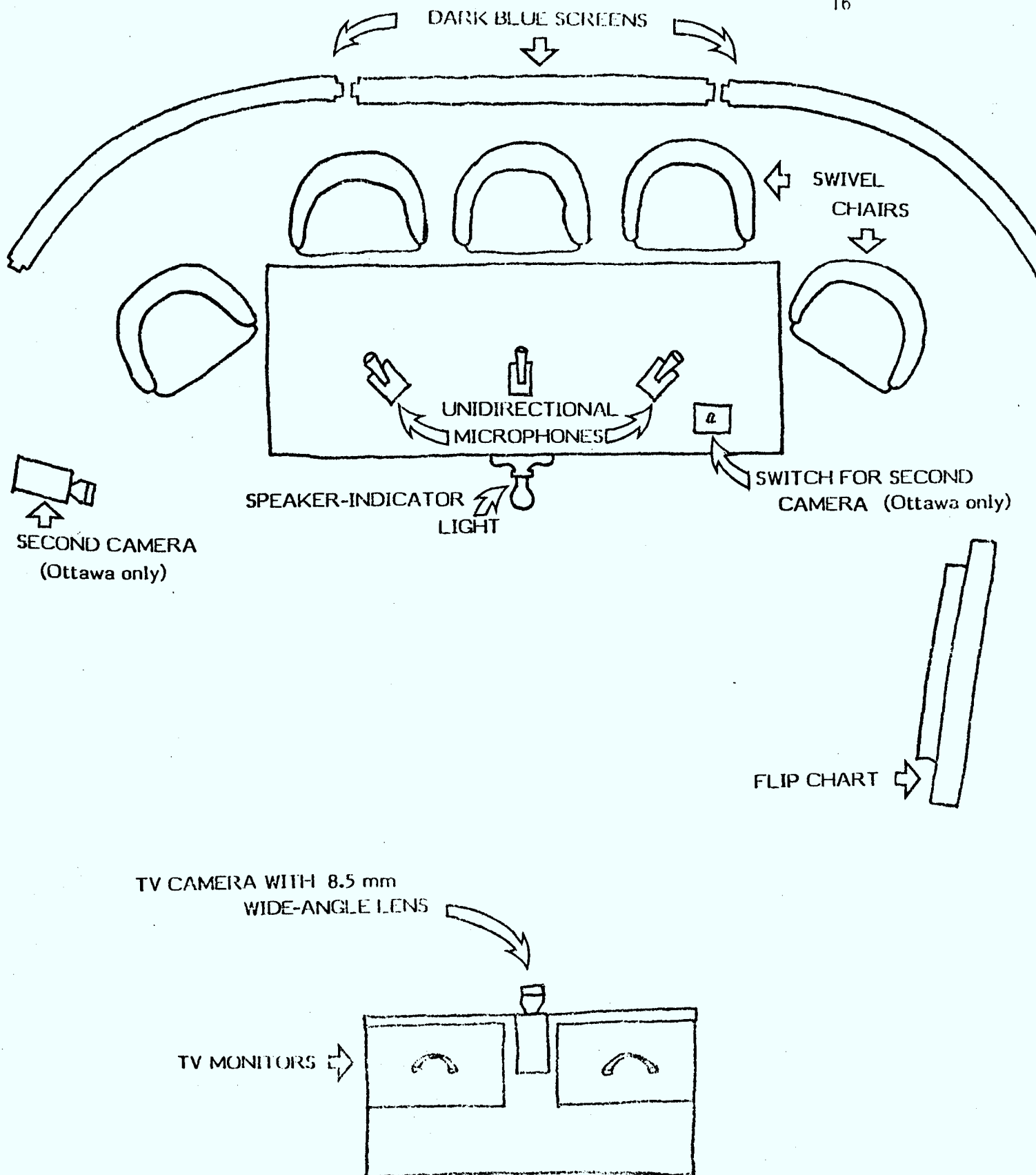
### 5.3 The Learning Centers

Table 2 shows an artist's conception of the learning centers. Each group of five learners occupied a learning center which included four monitors, each with video feed from one of the other four learning centers. Each center also provided a camera\*, an open microphone system with headphones, and appropriate furniture for five participants. Using this equipment, participants of any group could maintain continuous visual contact and communicate with any other group without delay.

The learning centers and the special video multiplexing technology, developed to send four video images over one channel, are described in more detail in the Miller (1977, a, b, c) and Barker and McCoy (1977, c, d, e) articles. The centers reflect an underlying principle of the project: technology should serve learning and not vice versa.

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\* A graphics camera was added in Ottawa.



#### 5.4 The System

The overall system configuration for the PSC-CTS Experiment is illustrated in Figure 2. The end terminals of the experiment were located at 1'Esplanade-Laurier, West Tower, in downtown Ottawa and Memorial University in St. John's, Newfoundland.

Audio and video signals originating from the conference room (room 750) in 1'Esplanade-Laurier were directed via the Monitoring and Control Room (room 705), where remote viewing and video taping took place, to the Bell Canada microwave equipment located on the roof of the West Tower. The microwave system provided two-way audio/video services between the West Tower and the 9-metre CTS terminal at the Communications Research Centre, Shirley Bay.

The audio/video signals from Ottawa were transmitted by the 9-metre terminal via the CTS satellite and received in St. John's by the 3-metre CTS transportable terminal located on campus at Memorial University. The output of the 3-metre terminal was sent to the Educational Television Centre in the Education Building.



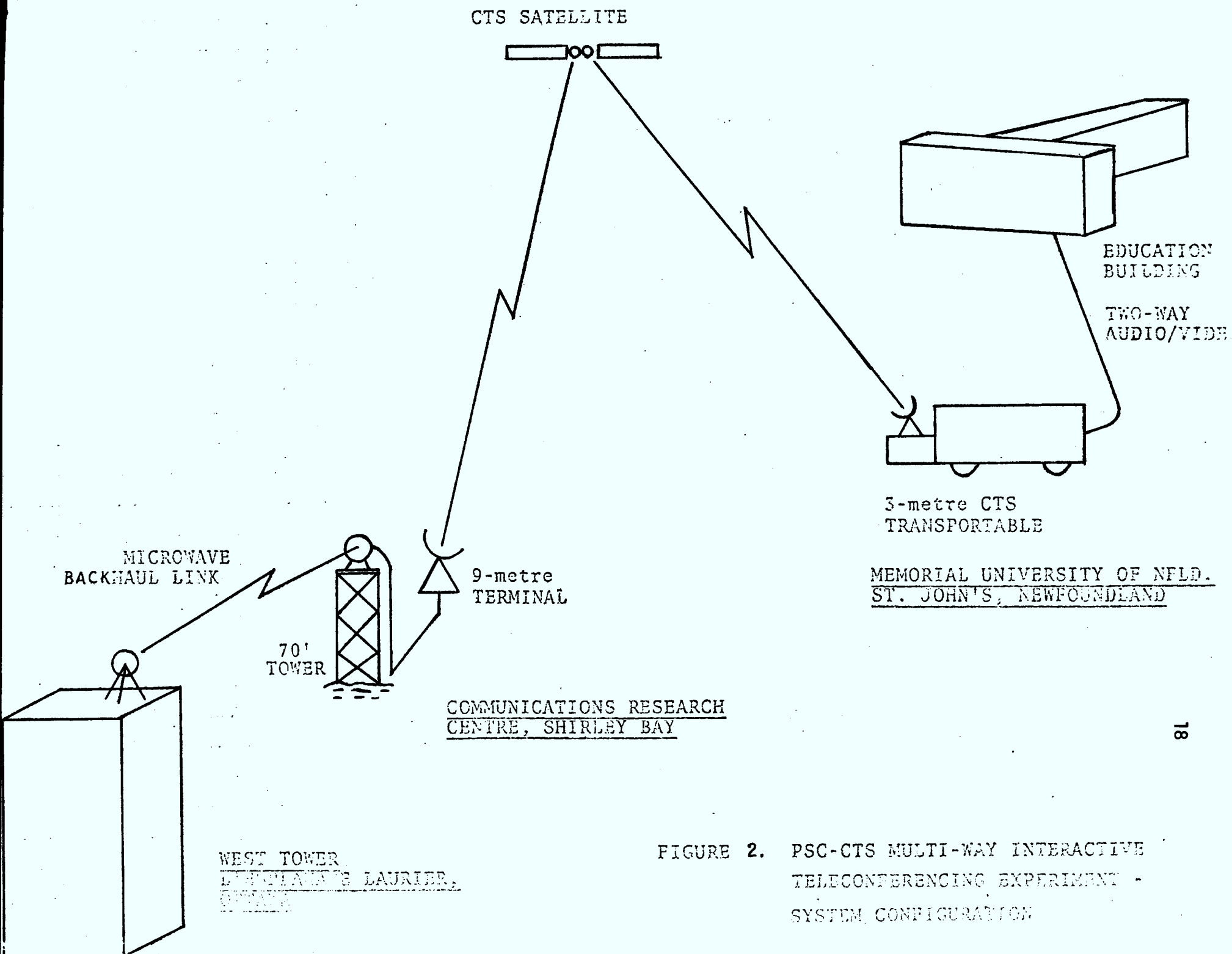


FIGURE 2. PSC-CTS MULTI-WAY INTERACTIVE  
TELECONFERENCING EXPERIMENT -  
SYSTEM CONFIGURATION

For the return path, the multiplexed video and audio signals originating from the conference rooms in the Education Building were directed in the opposite direction and followed the same route as outlined above.

A contingency configuration was prepared in the event of failure of the satellite high power tube. For this situation the Ottawa terminal transmitted normal audio and video to St. John's via the 20 watt satellite transponder and the audio portion of the St. John's conference was routed to Ottawa via a terrestrial telephone circuit. This configuration was used on occasion and performed satisfactorily. A second contingency configuration was also readied in order to be prepared for total satellite failure. A Bell 50 A conference terminal was installed in one of the St. John's learning centres. This could have been linked to Ottawa on the Public Service Commission's national teleconference network had the need arisen.

## 6. CONCLUSION

Staff Training by Satellite met its project objectives. This report has demonstrated how each of these objectives has been met and presented the findings of project evaluation.

It must be concluded that remote learner centred interactive education is technically and educationally feasible in the public service context. The project

has demonstrated how interactive audio-video technology could help satisfy the training needs of remotely located civil servants. It has provided a theoretical model, a course and a system which could be operationalized in the near future. It has provided an opportunity for the Public Service Commission to adopt a vanguard position in the area of remote education and training. The recommendations discuss some of the possible activities that could follow.

## 7. RECOMMENDATIONS

A survey was conducted in the Staff Development Branch of the Canadian Public Service Commission requesting managers to identify the potential impact of future communication satellites. These managers identified both educational and administrative needs which satellites could help to satisfy (Appendix A). The educational needs the satellite could fill included the following:

- the use of satellite for training and developing regional officers
- the use of satellite to provide job-coaching and training to civil servants located in the remote and distant areas of Canada
- the use of satellite for training Indian and Eskimo civil servants who are learning management skills in the Northern Careers Program
- the use of satellite to make scarce and busy central human resources available to regional classrooms; also to make regional resources available to central classrooms.

- the use of satellite for joint projects between the Canadian federal government and other national and international organizations including negotiating on course design and resolving problems with joint venture participants.

In addition, the Regional Operations component of the Branch identified the need for a national video teleconference system for management functions. It should be emphasized that many of these needs could also be satisfied by existing terrestrial systems.

In light of these stated needs, the following general recommendations are offered:

- Aggregate remote communication needs of the organization in the areas of training, administration and data transmission.
- Determine the extent to which existing telecommunications systems satisfy the need.
- Supplement existing systems by whatever additional systems are required.
- Proceed from pilot project use of systems to fully operationally multi-use remote communication systems in order to insure maximum return on telecommunications investment.
- Utilize existing free experimental communication facilities to assure the most efficient and effective utilization of human and material resources on eventual operation systems.
- Maintain liaison with public service telecommunications user groups.

These recommendations will allow the organization to benefit from the multiple opportunities offered by tomorrow's communications systems.

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Government of Canada  
Gouvernement du Canada

Appendix I  
MEMORANDUM

NOTE DE SERVICE

TO : François Leclair

FROM : Guy Jean

SECURITY-CLASSIFICATION - DE SÉCURITÉ
OUR FILE - N/RÉFÉRENCE <i>DE-76-175</i>
YOUR FILE - V/RÉFÉRENCE
DATE September 17, 1976

SUBJECT / OBJET: The Viability of Satellite Systems for the Staff Development Branch

The Management Committee requested operational divisions of SDB to:

- (1) determine the viability of launching a satellite project and (2) provide feedback concerning the implementation of the satellite project (SDB, July 20, 1976, 76-125, poste #2). The responses of operational divisions are attached (see Appendix A) and are summarized below.

In general, the responses to the current SDB satellite project are positive. Furthermore, most agree that the SDB would benefit from the continued utilization of satellite technology. The operational divisions see the satellite:

- (1) responding to the administrative needs of a decentralized Staff Development Branch
- (2) bridging the gap between technology and training
- (3) providing new methodologies for remote learning

The following table summarizes the specific proposals for the five experimental satellite channels available in the 1978-1982 time frame.

Also find enclosed our recommendations in light of the proposals.

Please place this item on the next Management Committee meeting.

*Guy Jean*  
Guy Jean

### Recommandations

- 1) Nous recommandons que des projets à caractère semi-opérationnel pour des fins administratives et de formation, soient présentés au ministère des Communications par la Direction générale du perfectionnement.
- 2) Nous recommandons que les propositions décrites dans les documents annexés donnent suite à des projets semi-opérationnels tels que mentionnés plus haut.
- 3) Nous recommandons qu'on examine la possibilité de collaboration entre la D.G.P. et autres directions de la Commission en vue de déterminer le contenu possible d'un programme d'activités internes ou externes via satellite.
  - ex. - administration interne, dotation, etc.
  - collaboration entre la C.F.P. et la Communauté européenne sur l'économie (C.E.E.), telle que proposée par Mlle Szlajak (compte-rendu de la réunion des commissaires, 18 août 1976)
- 4) Nous recommandons que l'on ait recours au groupe chargé des expériences via le S.T.T. pour l'élaboration et la gestion d'un éventuel programme d'activités via satellite.

Satellite Proposals

Regional Operations	<ul style="list-style-type: none"> <li>(1) National video tele-conference system linked by satellite for both training and management purposes</li> <li>(2) Use of satellite for the training and development of regional training officers</li> <li>(3) Use satellite for language training</li> </ul>
BSDT	<ul style="list-style-type: none"> <li>(1) Northern Careers Program</li> <li>(2) Use satellite to provide on the job coaching and training in remote areas to civil servants from various departments (Environment, Transport)</li> <li>(3) Joint projects among national or international training organization (P.S.C. and American Civil Service Commission).</li> </ul>
BEE	<ul style="list-style-type: none"> <li>(1) Use satellite to make scarce and busy central human resources available to regional classrooms</li> <li>(2) Use satellite to negotiate with joint-venture partners in developing course design or resolving problem areas without incurring travel costs</li> </ul>
Studies	<ul style="list-style-type: none"> <li>(1) Joint satellite ventures in management development with other related provincial, national or international agencies</li> <li>(2) Offer Studies' personnel to assist other satellite user organizations</li> <li>(3) Studies is ready to assume coordination of future satellite activities on behalf of SDB</li> </ul>
Language Bureau	No specific proposals
Learning Support	No specific proposals



## MEMORANDUM

## NOTE DE SERVICE

TO  
A

Mr. M. Ryan,  
 Educational Feasibility Analysis Service,  
 Studies Division,  
 Staff Development Branch.

FROM  
DE

D.C. Rowland

SUBJECT  
OBJETSatellite Project

SECURITY-CLASSIFICATION - DE SÉCURITÉ
OUR FILE - N/RÉFÉRENCE
YOUR FILE - V/RÉFÉRENCE
DATE September 14, 1976.

As the Bureau of Executive Education is a small compact unit catering to a senior clientele who demand a higher than normal degree of individual face-to-face attention, it is all we can do to deal with them eyeball to eyeball and until we consolidate these capabilities, we see little to be gained by expanding in a major way into teleconferencing and satellite approaches.

Further, we are in a tight budget situation and as a small outfit we must ensure that all expenditures are directly linked to events and activities that will ensure achievement of chosen strategies in our master plan.

However, the basis of the information now available, we can see two potential uses for BEE - to project scarce and busy resources from Ottawa into regional classrooms, and to interact with joint-venture partners in negotiating course designs or resolving problem areas without incurring travel costs.

In terms of the activities suggested in the Studies Division paper, we cannot see ourselves running a course with participants scattered across the country - they need to rub shoulders to get the ultimate out of the learning experience.

Concerning communication modalities, we see ourselves only being interested in the interactive type, and audio/video medium. The pattern of communication could be either interpersonal or inter-group, depending on the situation.

The cost is an interesting factor - obviously we would only find it practical under the CTS or Anik IV systems, where costs are incurred only at user locations. If we did make any amount of use of this medium on regional offerings, we would either need quite a few ground stations, or restrict our regional offerings to a few locations where we have permanent units.

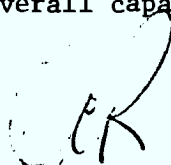
The greatest advantage of such a system, of course, would be to make use of a busy Ottawa resource without incurring travel time for him. We would also save travel and accommodation costs. Whether we would make enough of a saving over a one-year period to justify the cost of the system is questionable.

The difference in time zones might cause something of a scheduling problem.

The psychological implications cause us some concern, especially if we use resources only once or twice each. It obviously requires a fair bit of training to a) control individual mannerisms, b) structure thoughts, c) speak slowly and clearly, d) restrict movements to remain within camera range, etc. We think it would make for a stiff presentation lacking spontaneity, certainly the first couple of times.

Overall, we feel the system offers potential, but we would like to see it in operation, or try it out on a trial audience before using it on a course or seminar. We understand Studies have a simulation available at Carleton Place that can be used for this purpose. Similarly, we understand that the University of Syracuse can link into the American satellite project. Coupling these two facilities might provide a useful experiment. The presence of Jill Bodkin at Syracuse would seem to enhance the feasibility of such a trial use.

In sum, we'd like to test before we commit ourselves and it must be understood that any commitment which results, given our size and limited budget, would not be terribly significant in relation to the overall capacity of the system.



D.C. Rowland,  
Assistant Director General,  
Staff Development Branch,  
(Bureau of Executive Education).



MEMORANDUM

NOTE DE SERVICE

TO  
A

Guy Jean  
Division des études

FROM  
DE

Jérôme Cyr

SUBJECT  
OBJET

Les satellites de télécommunications

SECURITY-CLASSIFICATION - DE SÉCURITÉ
OUR FILE - N/RÉFÉRENCE
YOUR FILE - V/RÉFÉRENCE
DATE 1e 13 septembre 1976

Suite à la demande de la Division des études de leur soumettre des propositions de projets expérimentaux pour l'utilisation des satellites de télécommunications, vous trouverez ci-joint la note de service qu'Yvon Bordua m'adressait le 31 août dernier.

Je suis entièrement d'accord avec Yvon que la D.G.P. devrait tenter de faire l'expérience de communication par satellites sur deux plans: pour fins d'enseignement et de formation, d'une part, et pour fins administratives, d'autre part.

Le Bureau des Opérations régionales est déjà impliqué dans le projet expérimental avec l'Université Mémorial prévu pour l'an prochain. Vous avez eu, je crois, des discussions à ce sujet avec Bill Tremaine et Bill Davis. Je crois comprendre que ces discussions ont été centrées presque exclusivement sur le projet '76 et que vous n'avez pas tellement parlé de l'usage des nouveaux satellites auxquels nous aurions accès.

Aux propositions déjà soumises, j'aimerais rajouter les suivantes:

- 1) Il me semblerait naturel et utile d'élaborer un projet expérimental qui donnerait suite au projet avec l'Université Memorial en tenant compte de l'évaluation et des conclusions qu'on pourrait tirer de cette expérience.
- 2) Il y aurait lieu d'envisager la substitution du système de téléconférence déjà approuvé mais non encore en place par un système de téléconférence plus versatile en utilisant les facilités d'un satellite qui nous donne accès à un grand nombre de canaux et qui nous offre une dimension vidéo.

- 3) Les experts en matière de formation des formateurs et des professeurs pourraient possiblement élaborer un programme de formation pour nos professionnels qui se trouvent dans les régions.
- 4) Il me semble qu'il y aurait lieu d'envisager, après 1976, un projet de grande envergure, de préférence en formation linguistique (le recrutement de participants en assez grand nombre partout au pays serait plus facile), projet qui rejoindrait certaines des suggestions d'Yvon Bordua.
  - a) Projection vidéo via satellite à des groupes homogènes d'étudiants réunis en divers lieux à travers le pays, disons une heure par jour.
  - b) Documents connexes à l'émission fournis aux inscrits pour étude personnelle, incluant des textes d'apprentissage micro-programmés complémentaires.
  - c) Tutorat individualisé quotidien via téléphone (peut-être une demi-heure par jour) pour résoudre les difficultés qu'a chaque étudiant à partir de l'émission vidéo en a) et/ou de documents en b). Les tuteurs seraient des professeurs de nos centres régionaux.
  - d) Animation d'ateliers occasionnels complémentaires via satellite (audio/vidéo) avec chaque groupe local et possiblement avec échanges inter-groupes.
  - e) Evénements spéciaux organisés par chaque groupe "local" avec l'aide des tuteurs régionaux, exploitant les ressources locales du milieu dans la culture seconde, pour partage via vidéo avec les autres groupes des autres régions.
  - f) Possibilité de télé-administration de tests de rendement et d'examens avec feedback individualisé de spécialistes au "centre".

Somme toute, il me semble non seulement intéressant mais très utile de faire l'expérience d'une approche multi-média pour la formation "en masse" dans un secteur tel l'apprentissage de la langue seconde.



Enfin, en guise de conclusion, les projets proposés par les Opérations régionales ne sont peut-être pas les plus valables; mais ce qu'il faut retenir, c'est que nous sommes disposés à collaborer à tout projet, quel qu'en soit les initiateurs, qui permette

- a) de mieux intégrer nos bureaux régionaux au reste de la D.G.P.;
- b) de mieux remplir le mandat de la D.G.P. vis-à-vis les fonctionnaires qui se trouvent à l'extérieur de la région de la Capitale nationale, et
- c) d'explorer le potentiel de la technologie des communications modernes en matière d'éducation.

  
Jérôme Cyr

copies à: W. Tremaine  
Y. Bordua  
L. Molgat



TO  
A

Guy Jean

FROM  
DE

R. Duplantie  
Directeur général adjoint suppléant

SUBJECT  
OBJET

SATELLITE PROJECT



SECURITY-CLASSIFICATION - DE SÉCURITÉ

OUR FILE - N/RÉFÉRENCE

YOUR FILE - V/RÉFÉRENCE

DATE

le 3 septembre 1976

BSDT Management supports and believes in the eventual merits of the Satellite Experimental Research Project, while recognizing that difficulties often arise when the crunch comes to move an excellent concept based on advanced technology from the experimental stage into the reality of the work place.

BSDT appreciates the long range and variety of possibilities offered by tele-training as presented in the papers produced by Experimental Programs, Studies Division.

On the one hand, it would appear that Public Service staff located in out-laying districts, outside major urban centres, would be the great beneficiaries of tele-training. Consequently, the implications on SDB Regional Operations would be greater than say on NCR operations. It follows that Regional Operations is in a better position to propose possible applications of tele-training for its various client groups.

- i.e. - Northern Careers Program needs for a variety of courses available and accessible in southern urban regions.
- The staff of Environment Canada and Ministry of Transport operating weather stations and other services in the Arctic may need periodic up-dating sessions in various fields: supervision, human relations, technology, etc.

On the other hand, however, BSDT considers that research projects of this nature while exploring possibilities of technological applications in one area of education usually discover or confirm assumptions or hypotheses in other aspects of training. This particular project may well provide the stimulus needed for developing alternatives to traditional or more conservative methods presently used in our training programs. For instance, it may very well be that the Satellite Project will, as a result of its experiments, shed new light on inter-active communication, on media techniques and material development as well as on the design of some course models. Thus, SDB in general stands to gain greatly from the research project.

R. Duplantie



MEMORANDUM

NOTE DE SERVICE

TO  
A

R. Duplantie  
Acting Assistant Director General  
B.S.D.T.

FROM  
DE

D.R. Alton  
Acting Director,  
Consultative Division

SECURITY-CLASSIFICATION - DE SÉCURITÉ
SEP 3 1976
OUR FILE - N/REFERENCE
J. Zegers
YOUR FILE - V/REFERENCE
DATE September 3, 1976.

SUBJECT  
OBJET

Satellite Project (BSDT Mgt. Com. Documents 75/460 and 76/439)

Teleconferencing adds the "picture" dimension to long range communication and offers a variety of possibilities as indicated in the reports and other papers produced by Experimental Programs.

As with many experimental programs of this nature, the difficulty arises when the crunch comes to move an excellent concept based on advanced technology from the experimental stage into the reality of the work place.

While I support and believe in the eventual merit of teleconferencing I can offer no suggestions for its application in SDB beyond those already suggested.

Notwithstanding, a situation has come to our attention from the regional office in Winnipeg that may offer an application for teleconferencing.

Environment Canada and the Ministry of Transport operate weather stations and a variety of other services in the Arctic. The staffs are usually small and isolation soon brings out the best and the worst in each person, which can lead to serious interpersonal problems which could challenge the most experienced supervisor, and many of those sent to these posts apparently are not very experienced.

I understand that "Long-range" educational techniques using TV are used in Newfoundland for its isolated villages. The Open-University concept in the UK is another example. Teleconferencing adds the discussion dimension to this kind of teaching/learning and therefore should be much more effective.

What I am suggesting is that the use of teleconferencing in the Arctic, or other isolated areas, could make on-going management development and eventually on-the-job coaching programs available to people who probably have time and would likely welcome the opportunity to participate in them.

A variety of programs could be offered in a joint-venture with any province concerned.

An added highly important consideration would be the inherent communication link that would be established which should reduce the isolated feeling of those located in these extremely remote areas as well as provide a way to deal with emergency situations.

I presume that we will be kept informed of the results if the Newfoundland /Carleton Place experiment.

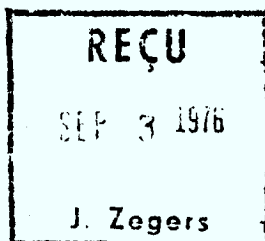


D.R. Alton



MEMORANDUM

NOTE DE SERVICE



TO  
A

R. Duplantie, Acting ADG

FROM  
DE

Jill Bodkin

SUBJECT  
OBJET

Satellite Project

SECURITY-CLASSIFICATION - DE SÉCURITÉ

OUR FILE - N/RÉFÉRENCE

YOUR FILE - V/RÉFÉRENCE

DATE

2 September 1976

I found the recent document prepared by the Satellite Project Team very useful. In fact, it raised the kind of issues I thought we were commenting on.

It seems to me that we still have to come to grips with a fundamental issue. If we are to use any form of earthly or satellite transmission, we need to move ahead in our use of media. The availability of little or no cost satellite experimentation could provide the stimulus for BSDT to get serious about developing alternatives to traditional courses. I do not think, however, that the hardware is the issue.

As far as specific experiments are concerned, here are some germs of ideas:

1. Northern Careers has need of a variety of courses already available in the south.
2. Courses might be run simultaneously in the NCR and Regions.
3. The Maxwell School (where I will be studying) is using the ANIK satellite in a joint project with the US Civil Service Commission. Perhaps we could participate.
4. OECA ran an experiment in French training this summer using ETV, telephone tutoring, and group workshops. This pattern sounds promising (Jerome Cyr's wife was the Ottawa coordinator). Brian visited the Open University in Britain in 1972 - I'm sure he could propose many variations.

I'm sorry these comments are late. I hope you'll be able to use them.

*Linda R. Bodkin*  
(877) Jill Bodkin

c.c.: B. O'Regan



MEMORANDUM

NOTE DE SERVICE

TO  
A

Guy Jean

FROM  
DE

Roger Lapointe

SUBJECT  
OBJET

COMMENTAIRES ET RECOMMANDATIONS AU PROJET SATELLITES


SECURITY-CLASSIFICATION - DE SÉCURITÉ
OUR FILE-N/RÉFÉRENCE
YOUR FILE-V/RÉFÉRENCE
DATE 1e 2 septembre 1976.

J'ai lu la documentation que vous m'avez fait parvenir le 24 août dernier. J'éprouve des difficultés sérieuses à vous faire part des commentaires et des recommandations qui permettraient à la DGP de prendre une décision quant à la poursuite du projet que vous présentez.

Ne serait-il pas préférable d'attendre que nous ayons toutes les données sur les expériences du satellite technologique de télécommunication (STT) qui se poursuivent jusqu'en juin 1977 avant de décider si oui ou non nous désirons mettre sur pied un système plus élaboré en matière d'éducation et d'administration?

Les documents que vous m'avez fait parvenir élaborent des propositions intéressantes quant aux possibilités d'un tel programme pour la DGP. Ces propositions demeurent cependant théoriques et nous n'avons que très peu de données pour juger de leurs pertinences.

Remarquez bien que je ne suis pas contre ce projet mais plutôt que je me trouve dans une position difficile pour porter des commentaires favorables à un projet qui pourrait s'avérer assez onéreux. Plusieurs points d'interrogation demeurent sans réponse.

  
Roger Lapointe

/dp





MEMORANDUM

NOTE DE SERVICE

TO  
A

Guy Jean

FROM  
OE

V.W. Barbeau

SUBJECT  
OBJET

Utilisation éventuelle de satellites  
ta note du 24 août

SECURITY-CLASSIFICATION - DE SÉCURITÉ

OUR FILE - N/RÉFÉRENCE

YOUR FILE - V/RÉFÉRENCE

DATE  
le 31 août 1976

Nous avons beaucoup apprécié la présentation que Mike Ryan et Al Miller ont faite à notre Comité de Gestion de la D.A.A. le 26 août. Ils ont su répondre à la plupart de nos questions, surtout sur le plan de la technologie.

Pour ce qui est de l'aspect pédagogique du projet, il reste évidemment un tas de questions qui n'auront de réponses qu'au fur et à mesure que l'expérimentation progresse.

Le coût du projet demeure vague. Par exemple, ta note récente sur le besoin d'équipement nous révèle un \$25,000. qui n'avait pas été prévu au budget ...

Le personnel du Service Audio-visuel devrait être davantage "embarqué" pour éviter les surprises futures.

L'utilisation éventuelle? En toute évidence, surtout avec la régionalisation des opérations, et la démocratisation de la formation et du développement, les satellites promettent beaucoup.

En somme, c'est là un des projets les plus intéressants que j'ai vus depuis longtemps, et je suis impatient d'en voir les résultats.

V.W. Barbeau





MEMORANDUM

NOTE DE SERVICE

TO  
A

Jérôme Cyr

FROM  
DE

Yvon Bordua

SUBJECT  
OBJET

Le satellite technologique de  
télécommunication

SECURITY-CLASSIFICATION - DE SÉCURITÉ
OUR FILE-N/ RÉFÉRENCE
YOUR FILE-V/ RÉFÉRENCE
DATE le 31 août 1976

Quand on pense à l'étendue du Canada, aux fonctionnaires dispersés dans tous les coins de ce vaste pays et à l'objectif que nous devons poursuivre par la nature même de nos opérations, il va de soi que le projet d'un satellite technologique de télécommunication s'avère des plus intéressants, voire passionnants et essentiels. Il se pourrait que l'on trouve ainsi une réponse à certaines de nos préoccupations majeures.

Je vois donc une expérimentation nécessaire sur deux (2) points particuliers:

- a) l'enseignement des langues et/ou le maintien des connaissances à des groupes composés de gens dispersés à travers le pays et
- b) la tenue de réunions plus fréquentes de nos responsables dans les régions grâce à ce nouveau moyen de communication.

Elaborons un peu sur chacun des points.

- a) Tel que le mentionnait le député de Toronto-York le 13 mai 1976 à la Chambre des Communes, il faut trouver un moyen d'augmenter l'efficacité et de réduire les coûts au sein du gouvernement en ce qui a trait à la formation du personnel. Pensons aux besoins des fonctionnaires partout au pays dans le domaine de la formation linguistique. Ces gens doivent, dans une proportion de 33% actuellement, quitter leur ville, leur conjoint, leur famille, leur vie sociale pour des périodes qui peuvent aller jusqu'à douze (12) mois. Il faut trouver un moyen d'arriver au même but autrement. Notre formule actuelle de compromis réside dans l'ouverture de cellules. Il faudrait tenter une expérience d'enseignement adapté au satellite:
  - a-1) l'enseignement programmé avec sessions interactives vidéos pour vérifier périodiquement l'apprentissage;
  - a-2) l'enseignement régulier vidéo qui concentrerait sur certaines phases de l'apprentissage;



a-3) combinaison de a-1 et a-2.

Je considère le point a) d'une importance primordiale.


- b) La distance qui nous sépare de nos gens nous oblige souvent à leur faire parvenir par écrit des communications qui, pour s'avérer encore plus efficaces, nécessiteraient une possibilité d'échange sur-le-champ. Il s'agit d'échanger avec plus d'un centre à la fois bien entendu.

Au niveau des animateurs pédagogiques, il existe une nécessité au niveau de quelques réunions désirées, utiles mais dispendieuses.

L'on peut de fait affirmer qu'il y a un besoin de réunions plus fréquentes sur des points précis qui demandent une action immédiate. Souvent, la nécessité de clarifier immédiatement existe et le fait que tout le monde soit sur la même longueur d'ondes grâce aux questions qui peuvent venir d'un peu partout, accélère le travail et enlève un élément de frustration que les gens des régions peuvent éprouver malgré nos plus grands efforts.

Les points des secteurs a) et b) rencontrent toutes les exigences qui rendent souhaitable une expérience d'échanges. Quelle forme ces échanges doivent-ils prendre? Par moments, l'on peut se servir de moyens déjà existants ou sur le point de pouvoir nous aider (e.g. système de téléconférences); en d'autres occasions, il nous faudrait un outil tel que le satellite de télécommunication.

Si l'on relit les propos du député de Toronto-York le 13 mai 1976, l'on ne peut que faire immédiatement un lien avec les besoins de fonctionnaires que l'on doit actuellement obliger à se déplacer pour des périodes prolongées.

  
Yvon Bordua

YB/cl

TO:  
POUR:

Ray Jan / Brian Ryan

☐ Action  
Donner suite

☐ Direct reply  
Répondre

☐ See me  
Me voir

☐ Comments  
Commentaires

☐ Approval  
À approuver

☐ Signature  
À signer

☐ Translation  
À traduire

☐ Preparation of reply  
Projet de réponse

☐ For Chairman's signature  
À signer par le Président

☐ For Director General's Signature  
À signer par le Directeur général

☐ For Assistant Director General's Signature  
À signer par le Directeur général adjoint

☐ Information  
Pour information

☐ Note & File  
Noter & classer

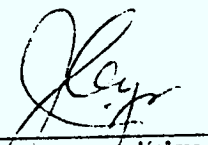
☐ Note & Return/or Forward  
Noter et retourner ou faire suivre

☐ Your request  
À votre demande

Remarks - Commentaires

Par erreur, je ne vous avais pas  
soumis cette contribution de Bill Tremblay  
à rajouter au Doc. 76-154 sup.

6/10/76  
Date - Date

  
Jérôme Cyr  
Assistant Director General - Directeur général adjoint



TO  
A

Jérôme Cyr

FROM  
DE

W.R. Tremaine

SECURITY-CLASSIFICATION - DE SÉCURITÉ

OUR FILE - N/RÉFÉRENCE

YOUR FILE - V/RÉFÉRENCE

DATE

August 24, 1976

SUBJECT  
OBJET

POSSIBLE USE OF THE EXPERIMENTAL SATELLITE SYSTEM

Jérôme, I've listed below some of the days in which we might use the satellite communication system once the second satellite is launched. Regional operations is in a good position to contribute to the experimentation, and to benefit from the use of the satellite. However, we should not fall into the trap that many people do when a new system comes along, that of using the system alone and neglecting other, possibly more effective, and possibly less expensive systems that could be used in parallel with the new system. Here are the things that I would see the satellite used for.

1. On regular regional courses - here we could use
  - a) segments of courses using live resources with a one way picture transmission and two way voice transmission
  - b) whole courses via television. Remembering that the attention span of the participant in watching television is quite limited, the courses would probably have to be broken up into hour long segments. Also the courses should be live transmissions. If we are going to use video taped or filmed presentations then these should be shipped to the regions for showing on the course. This is much less expensive.
  - c) Other inter-active systems - The satellite experiments should be conducted along with other systems already in existence. There is room for two way voice transmission experiments which are considerably cheaper than picture transmission. We should also consider the use of Data-Fax document transmission systems which could be used by resources to transmit documents. We should also consider using, on an experimental basis, the so called electronic blackboard via the satellite. This holds great promise as a training device.

## 2. Other uses of the satellite system

- a) telephone teleconferencing via the satellite system on a regular basis. We will actually be implementing this via "land-lines" as soon as our system is installed across the country. I would see us using this kind of conferencing with two way voice transmission on a regular basis probably one or twice a week for parts of the regional operations group or the group as a whole
- b) televideo conferencing. We should perhaps do some experiments, possibly up to 1 hour at a time, with as many stations in our regional operations network as possible. Here we would use two way video and two way voice transmission. If the experiments in this area worked we could eliminate some of the face meetings and conferences that take place

This is essentially what I gave to Mike Ryan as possible uses for the satellite system. I hope this is of some use to you in any discussions that take place with Management Committee. I think that regional operations should be, and will be, in the vanguard of experimentation with the satellite system and the use of other existing systems in concert with it.



W.R. Tremaine

STAFF TRAINING BY SATELLITE

PROJECT MANAGEMENT

REPORT

by

Michael G. Ryan, Ph.D.

PROJECT LEADER

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## 1. INTRODUCTION

The management process necessary to produce the major products of the Staff Training by Satellite Project is discussed in the five accompanying volumes. The volumes discuss the model, the course, technology, research and evaluation. Thus, the major function of this management report is to discuss those management topics treated neither in the accompanying volumes nor in the experimental plan found in this present volume. These topics include recruitment of participants for the project, liaison, external to the Public Service Commission and external satellite related activities.

## 2. RECRUITMENT

Participant recruiting for the Staff Training by Satellite project proved to be a more complex activity than expected. Essentially, recruiting was necessary for four separate courses; one residential simulation course at the Carleton Place Laboratories; two courses by satellite involving recruiting in Ottawa and Newfoundland, and a face-to-face control group. The recruitment for the simulation was conducted on a personal basis and the remote recruiting for the first satellite course was conducted by a needs survey-recruitment letter. Regional Operations of the Staff Development Branch recruited the remote participants for the second satellite course and the project team with the assistance of the Staff Development Branch Registrar's Office recruited the face-to-face control group. Essentially the recruitment for the first two courses reflects the social scientist's desire to recruit subjects directly while recruitment for the final two courses reflects standard government recruiting procedure in operation. The former proved more scientifically desirable; however, the

latter proved administratively much more efficient. The two recruiting methods did serve as an interesting explanation for some differences found in the experimental evaluation results.

## 2.1 Recruitment for the Simulation Course:

Réne Lortie and Nicole Mendenhall supervised the recruitment for the Carleton Place simulation course. Sixteen participants from the Public Service Commission's Staff Development Branch attended this four day residential course after being contacted on a personal basis.

## 2.2 Recruitment for the Satellite Course I

Nicole Mendenhall, Project Co-ordinator, and Judy Roberts, Newfoundland, Regional Co-ordinator, managed the recruitment for the first satellite course. The initial contact assumed the form of a needs survey conducted in April of 1975 which also provided respondents with an opportunity to express interest in a satellite mediated course. The survey identified fifty individuals who were interested in taking a course. Of these eighteen respondents made a firm commitment to attend the Long-range Planning course. Later, contact with the participants was centralized through the office of Judy Roberts in Newfoundland.

## 2.3 Recruitment for Satellite Course II

Participants for the St. John's satellite course II were recruited by the regional office representatives headed by Manager, Bill Davis. It is common practice in the regions for the federal government to share and/or exchange educational activities as well as human resources with both



provincial governments and universities. This was also the case for this course. A course announcement was circulated in the usual way to the university and to provincial and federal departments. It described the project and the proposed long-range planning course. Eighteen people enrolled, three from the university, five from the provincial government, and the remaining 10 from the federal government. Appendix I describes in greater detail the role of Regional Operations in recruiting.

#### 2.4 Face-to-face Course

A course announcement was circulated to all government departments and organizations (Appendix 2). This course announcement indicated that a long-range planning session would be offered twice a week for a two-hour period for four weeks. Information was also given on the learning/teaching approach to be used and the requirement that middle management level participants would have the responsibility of identifying what they considered to be their needs in long-range planning. One hundred and seventeen applications were received. Candidates were matched with the St. John's satellite I population on the basis of category, level and department. These participants were then telephoned to see if they would prefer to attend the face-to-face sessions, or a satellite session from the Ottawa location.

Twenty-three participants indicated their preference for, and were selected to attend, the face-to-face session. Eight more agreed to attend the course offered by satellite from the Ottawa location. Remaining respondents were offered the possibility of enrolling for another long-range planning course planned for the future.

### 3. EXTERNAL LIAISON

The Staff Training by Satellite Project not only included members of several organizations on its staff but a project of its nature also involved liaison with other federal, provincial and university organizations. A description of these liaisons follow.

#### 3.1 Department of Communications

Three branches of the Department of Communications were involved in the Staff Training by Satellite Project: The Space Branch, the Research Branch, and the Social Policy and Planning Branch. The Space Branch provided the space and terrestrial facilities for the project; the Research Branch provided research and evaluation support (both in the laboratory and in the field) and the Social Policy and Planning Branch provided evaluation support directly and indirectly through the University of Quebec and Athabaska University. Under normal circumstances contact with the Department of Communications was through the Project Leader.

(Appendices 3 and 4)

Interaction with the Space Branch involved representing the Public Service Commission at the satellite launch in Cape Canaveral, at the satellite inauguration in Ottawa and at general meetings in Ottawa where contact level was with the Minister, Deputy Minister, and the Assistant Deputy Minister for Space of the Department and other senior officials. The Project Leader was also in regular contact with the Space Communications Programs Office of the Communications Research Center who provided the satellite and terrestrial facilities.

Interaction with the Research Branch was with the personnel of the man-machine Interaction Program of the Technology and Systems Branch with whom the project staff conducted joint research and who provided behavioral evaluation support for the project. Contact was maintained through the project leader and the evaluation co-ordinator who also maintained contact with the Social Policy and Programs Branch, providers of evaluation assistance.

### 3.2 Department of Supply and Services

The Department of Supply and Services administered contracts with Miller Communication Systems and Memorial University on behalf of the Public Service Commission. Contracts administration officer, Kathy Boyd, provided invaluable services during the project life in facilitating the provision of services to the project.

### 3.3 Memorial University

The satellite project leader negotiated a letter of understanding with Memorial University for the signature of President Moses Morgan and Mr. G. Duclos, then Director General of the Staff Development Branch (Appendix 5). Contracts were let within the framework provided by the letter of understanding and have been satisfactorily completed.

### 3.4 Miller Communications Systems Ltd.

Miller Communications Systems Ltd. provided engineering and technical services to the project. Contract negotiation and monitoring was maintained by the project leader and the DSS contracts officer. Contracts are satisfactorily completed.

### 3.5 Government of Newfoundland

The Maritime Regional Co-ordinator of the project, Bill Davis, contacted the Newfoundland government for recruiting purposes. Michael Ryan interacted with the Deputy Minister of Transportation and Communication in relation to telecommunications aspects of the project.

These external contacts served to advance the interests of the project and the Public Service Commission. They also provided for a constant exchange of ideas and methods for mutual achievement of objectives.

## 4. EXTERNAL ACTIVITIES OF THE SATELLITE TEAM

While in preparation for the Staff Training by Satellite Project, the project staff was called upon to assist various external institutions to meet their objectives. Members assisted the University of Montreal, the University of Syracuse, the University of Quebec, the Government of Ontario, the Ontario Educational Communications Authority, and the North West Territories Government. The project leader was also on the founding organizational committee of a Canadian public service telecommunications user consortium.

### 4.1 The University of Montreal - Stanford University

At the request of Mr. Alphonse Quimet, Chairman, Board of Directors, Telesat (Appendix 6) Michael Ryan was assigned to the University of Montreal's Center for International Communication to serve on the organizational committee and as an on air resource person for the Parallel

Colloquium by Satellite (Appendix 7, 8). The colloquium lasted for two days and participants discussed the public service uses of satellites via satellite between the Universities of Montreal and Stanford. Dr. Ryan also served on two organizational sub-committees, the technical committee, and the video-tape production sub-committee (Appendix 9).

#### 4.2 The University of Syracuse - Public Service Commission

The University of Syracuse and the Public Service Commission conducted a demonstration project in executive education between Ottawa and Syracuse in March of 1977. Nicole Mendenhall, René Lortie and Michael Ryan were called upon to provide their project management and evaluation expertise to the project organizers (Appendix 10). These members of the Staff Training by Satellite staff were very active in managing the Canadian end of the experiment and conducting the evaluation (Appendix 11).

#### 4.3 University of Quebec

Réne Lortie served as an evaluator of the three University of Quebec experiments conducted over the Communications Technology Satellite. This work was conducted on contract to the Communications Research Center of the Department of Communications. His work led to his being accepted for a two year Executive Interchange with the Vice Presidency of Communications at the University of Quebec.

#### 4.4 Government of Ontario - Ontario Educational Communications Authority

Michael Ryan was requested to consult with the Government of Ontario and the Ontario Educational Communications Authority on their joint teleconference

and tele-education project on the Communications Technology Satellite (Appendix 12). He assisted these organizations in project management and evaluation strategies.

#### 4.5 Federal Government - Northwest Territories Government

At the request of the Northern Careers Program of the Public Service Commission, Michael Ryan and Alan Miller of the satellite project provided a briefing to members of eight federal government departments and the North West Territories Government on the feasibility of experimentation with satellites provided by the Department of Communications.

#### 4.6 Canadian Public Service Telecommunications Users Consortium

Michael Ryan has been named as a founding organizer of a Canadian organization which will represent the public telecommunication users. The aim of the organization is to provide a united front for public service telecommunications users such that institutional needs will be better met.

These activities indicate the core project management team from Prospective developed valuable expertise which could satisfy the practical needs of other public organizations. This work complements the internationally distributed professional work of the satellite team.

## APPENDIX I

### STAFF TRAINING BY SATELLITE REGIONAL OPERATIONS RECRUITMENT REPORT

by

Bill Davis, Regional Manager  
Staff Development Branch  
Public Service Commission  
Halifax, Nova Scotia

SATELLITE PROJECTCourse # 2St. John's, Newfoundland

This report will serve to summarize the involvement of the Halifax Office of the Bureau of Regional Operations in the two Satellite Training Courses held in St. John's, Newfoundland. The first course was conducted between April 21 and May 19, the second between May 24 and June 16, 1977.

1. Background

Involvement in the first course was mainly in an administrative support role, providing information on an as-required basis, and liaison with participating departments. Our role in the second course was greatly increased -- we were responsible for all aspects of staffing the course and all pre-course liaison and administration as it related to student participation. Comments in this report will therefore be restricted to the second course.

2. Cronological Summary of Regional Office Involvement

October 1976

Studies Division and Regional Operations (Davis/Ryan/Tremaine) met at Touraine and agreed to place responsibility for Course # 2 with BRO Office in Halifax.

November 1976

Advertising for Course # 2 was prepared and issued by the Halifax Regional Office (copy attached, Appendix # 1).

December 1976

I visited St. John's in order to follow up on November advertising and solicit co-operation from Federal and Provincial departments (see attached letter 29/11/76, Appendix # 2). That trip produced 14 nominees with the potential of the University involvement (see attached letter 14/12/76, Appendix # 3).

January 1977

I followed up with contacts made on December visit (see attached letter 13/1/77, Appendix # 4), and arranged for a pre-course meeting of students. Glen Barker from the Studies Division in Ottawa accompanied me on this trip to answer questions and concerns of students.



February 1977

By the time of that meeting, we had 20 students registered for the second course: 8 Federal, 8 Provincial, 4 University.

March 1977

Subsequent to the February meeting there were the anticipated number of dropouts, requiring additional marketing. This was done by personal contact over the telephone resulting in the final tabulation of students (see attached Appendix 5): 10 Federal, 6 Provincial, 3 University.

April 1977

I attended the opening of the first course to assist Judy Roberts of Memorial University in getting the Course # 1 students organized and held a final briefing session for all Course # 2 participants.

May 1977

I attended the opening of the second course.

June 1977

We held a wine and cheese party for Course 1 and Course 2 participants, passed out course certificates and expressed our thanks to all who had participated. Thank you letters were also sent out to all relevant parties. (Attached Appendix # 6).

### 3. Operations

#### a. Marketing

Marketing operations for the second course were hampered by the short time frame in which we had to complete this function. The Regional Office assumed responsibility for the second course on October 1, 1976. Our goal was to have 20 students enrolled by January 15, 1977. This meant that all aspects of marketing had to be done quickly and we weren't able to make as many personal contacts as we would have liked. It was well into December that the idea of opening the course to Provincial and University employees arose, and marketing there was quick and somewhat impersonal. Marketing the first course involved all levels of the organization concerned -- starting with senior management. For the second course our contact was restricted to senior management -- thereby preventing us from in-depth communication with would be participants.

Marketing was also made difficult because of the difficulty students had in relating to both content and process. Not only were we exposing students to an entirely new technological process but we were also using content matter somewhat foreign to most of them. I discovered very early on in the marketing function that most participants had little knowledge or experience in long-range planning. Most of their experience was in the traditional administrative functions of planning and organizing. This made it doubly difficult for them to cope with the entire experiment. On reflection it may have been better to provide a content with which students were familiar, thereby giving them some basis for comparison of learning supervisory or management techniques through telecommunication as opposed to traditional methods.

b. Staffing:

Staffing for the second course was done by nomination from senior management. This differed greatly from the first course where students were invited to participate through a data-stream sampling and then had the opportunity to choose the subject matter of the course. The overall commitment was better on Course 1 and this was reflected in course attendance statistics.

In an experiment of this nature, commitment of students is vital. To secure the commitment requires constant communication, information exchange and a constant flow of data which demonstrates our interest in and appreciation of student efforts. This aspect of staffing follow-up was absent from the second course. Once nominations were received from senior management, the Regional Office made personal contact with the student, but only to welcome him to the course and advise him of the pre-course meeting in February. We had no information to send out to keep the satellite course visibility high and to respond to students queries.

c. Mix

The mix of students on the second course was quite different from that of the first course. Course 1 students were selected using criteria which would provide a homogenous mix -- Course 2 students came from a variety of backgrounds -- both jurisdictional and organizational rank. This didn't seem to pose any great problems on the second course -- the group spirit was in evidence to the same degree as in the first course. However, the final comparison of evaluations will help determine if there were any real mix problems.

d. Administration

There were some administrative problems connected with the staffing process in the second course. Students were not always kept informed of decisions made by the satellite team in Ottawa. Certain of these

decisions, i.e. development of course content, evaluation process, administrative details relating to pre-course reading, library services at Memorial University could have been communicated to students on an on-going basis. As it was, students learned of these details at pre-course meetings in April. Future experiments of this type should provide for a steady stream of communication with students as decisions are made. It could also have helped if one person on the satellite team in Ottawa had been designated to be responsible for all pre-course administration. Because of work schedules and time differences, it was not easy to contact the various team members for information. The Regional Office was kept well informed of technical developments on the course through inclusion on the satellite team mailing list.

#### 4. Conclusion and Recommendations:

The Satellite Course went quite well considering the fact that we were facing many situations for the first time. Both content and process were new to most participants; it was a multi-jurisdictional event, and there were many aspects of long distance administration involved, not to mention the technological complexities of satellite transmission. Informal feedback from the students has been excellent (see sample letters, Appendix 7). We have even had one department invite us to continue application of satellite telecommunication in the work that the Halifax Office is doing with their staff on a Provincial basis.

Certain by-products of the experiment were especially beneficial to the Regional Office. Because it was a multi-jurisdictional event, we were able to establish a concrete working relationship with the Provincial Government of Newfoundland and Memorial University. In our attempt to meet Federal training and development needs in Newfoundland, the contacts made during the experiment will provide us with valuable support for future endeavours. In addition, the credibility of the Staff Development Branch has increased among Federal departments in that province.

#### Recommendations:

1. Future experiments of this nature should have one individual designated as the administrative co-ordinator. This will facilitate communication and ensure consistency of administrative decision making.
2. Communications with students should be more continuous and consistent in order to ensure high visibility of the experiment and to help keep students informed and interested in the experiment.
3. Staffing aspects of future experiments should be examined closely. Staffing of the first course provided greater involvement on the part of the student than did the second course, but follow-up communication, even with Course 1 participants could have been more thorough.
4. Marketing of this type of experiment should be closely examined for future events. Ample time should be allocated to personal contact with senior officials as well as with participants.



Public Service  
Canada

Fonction publique  
Canada

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## ANNOUNCEMENT

Staff Development Branch — Bureau of Regional Operations  
ATLANTIC REGION

### SATELLITE TELECOMMUNICATION PROJECT

#### COURSE # 2

May 24 - June 16, 1977

ST. JOHN'S, NEWFOUNDLAND

- OBJECTIVES:**
- To develop educational telecommunications as an educational tool.
  - To explore new methods of professional development.
  - To investigate the possibilities of providing managerial training via satellite technology.
  - To study those aspects of human telecommunication which may encourage or hinder learning.

#### PROJECT INFORMATION:

Between May 24 and June 16, 1977, twenty participants will take a managerial course using a five location satellite-mediated link (four locations will be at Memorial University of Newfoundland, one location will be in Ottawa). The first course, April 26 - May 19 is filled.

Each group will work out of a centre (see figure II) which includes four TV monitors, each with a video feed, from one of the other four learning centers. Each centre provides a camera, a microphone and loud-speaker system. Using this equipment, participants of any group may maintain continuous visual contact and communicate with any other group. These five learning centers will be connected by a combined system of satellite, microwave and cable (see figure I).

The Ottawa learning centre (Esplanade Laurier) will be joined by coaxial cable with a microwave system capable of carrying two-way audio-video. This microwave link will connect Esplanade Laurier

with the Canadian Telecommunication Satellite ground station at Shirley's Bay, 15 miles away. The CTS connects the Shirley's Bay ground station at Memorial University in St. John's. Coaxial cables will join that portable ground station with four learning centers within the MUN Education Building.

Central to this experiment is the development of non-directive learning, that is, learning through group interaction, with the assistance of someone who works as a resource person rather than a teacher. Participants will be encouraged to communicate freely with each other via the satellite system. The results of the experiment will help to determine the feasibility and costs effectiveness of staff training for public servants via satellite or other similar technologies.

#### GENERAL INFORMATION:

Students will be on camera for two hours each Tuesday and Thursday afternoon between May 24th and June 16th. There is also provision for two hours of small group exercises on Tuesdays and Thursdays. The satellite will be open on Saturday afternoons during the project for those students who wish to practice transmission and receiving techniques. The total amount of time commitment on behalf of each candidate is 32 hours, somewhat less than an average five-day management seminar. The subject matter of the project will be long-range planning with content details to be worked out with participants after registration.

As this is an experimental project there will be no fee for candidates.

#### REGISTRATION:

Persons wishing to register for this project should contact:

Mr. Bill Davis  
Regional Manager  
Bureau of Regional Operations  
Staff Development Branch  
Room 421, 1888 Brunswick Street  
Halifax, N.S. B3J 3J8  
Telephone: (902) 426-7550

or

Miss Judy Roberts  
Telecommunication Office  
Memorial University of Newfoundland  
Telephone: 753-1200 (2128)



Bureau of Staff  
Development  
and  
Training

Bureau du  
perfectionnement  
et de la formation  
du personnel

November 23, 1976

Your File    Votre référence

Our File    Notre référence

AD-61

Dear Colleague:

Attached you will find an announcement concerning the Public Service Commission's Satellite training experiment, to be conducted in St. John's, Newfoundland, May 24 - June 16, 1977. Originally, the course was scheduled for April 26 - June 16; however, the time commitments required of students for such a course would be unrealistic. Therefore, in response to departmental requests, the experiment has been divided into two sections; course number one, April 26 - May 19, and course number two, May 24 - June 16. It is in connection with the second offering that I am writing to you.

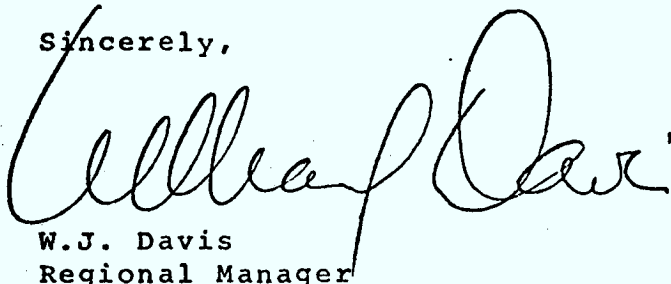
In order to offer this course we require twenty students, and I am asking that you consider participation of your department in this project. I realize that certain of your employees may already be involved in the first course; however, I hope the project is of sufficient interest that you will want to become involved in the second offering. The time commitment required on behalf of each student is 32 hours, spread over three weeks, or something less than a typical five-day management seminar.

.../2

Needless to say, the potential benefits of this experimentation will be of significant importance to us. I do hope you will be able to support us in this project; if I can answer any questions, or be of assistance in any other way, please feel free to contact me.

Thank you for your co-operation,

Sincerely,

A handwritten signature in cursive script, appearing to read 'W.J. Davis', written in black ink.

W.J. Davis  
Regional Manager

WJD/ap  
Enclosure

Room 421, 1888 Brunswick Street  
Halifax, N.S. B3J 3J8  
(902) 426-7550

APPENDIX II

STAFF TRAINING BY SATELLITE

OTTAWA RECRUITMENT NOTICE





Public Service  
Commission

Commission de la  
Fonction publique

Staff  
Development  
Branch

Direction  
générale  
du perfectionnement

January 24, 1977

65

le 24 janvier 1977

Your file: *Voire référence*

Our file: *Notre référence*

TO: Training Heads

AUX: Chefs de formation

SUBJECT: Long-Range Planning Session

SUJET: Session de planification à long-terme.

The Staff Development Branch is offering, without charge, an educational session in long-range planning. The session, which is designed for middle managers, will be under the direction of the Future Studies unit.

La Direction Générale du Perfectionnement offre une session de planification à long-terme sous la responsabilité du Service de la Prospective. Cette session est offerte, sans frais, aux cadres intermédiaires.

Details of the session are on the attached page.

Pour plus de détails, voir l'annexe. Les ministères doivent envoyer toutes les formules d'inscription pour cette session au plus tard le 11 mars 1977 au:

We invite departmental applications for this educational activity, to be sent not later than March 11, 1977 to:

Bureau du Régistrare  
177 rue Nepean  
Ottawa, K1A 0M7

The Registrar's Office,  
177 Nepean Street  
Ottawa, K1A 0M7

Directeur général associé intérimaire

D.C. Rowland  
Acting Associate Director General

LONG-RANGE PLANNING EDUCATIONAL ACTIVITY  
UNE ACTIVITE EDUCATIVE EN PLANIFICATION A LONG-TERME

Description

Purposes: The aim of the educational activity is to provide training for middle managers in long-range planning through a new educational approach.

Duration: 2 hours a day on Mondays and Wednesdays afternoon from May 23 to June 16, 1977.

Course fee: no fee

Content: To be determined by participants who will be consulted through a questionnaire before the session.

Possible Topics:

aging long-range planning.  
process of long-range planning.  
Techniques of long-range planning, etc.

Location: Esplanade-Laurier

Enrollment: 30 participants. Registration will be on a first-come, first-served basis.

Language: English

If you are interested, please fill the enclosed course application form and return it to your departmental training officer no later than March 11, 1977. For further information, please call Nicole Mendenhall, co-ordinator at 998-3823.

Description

But: Le but de cette session est d'offrir aux cadres intermédiaires une formation en planification à long-terme selon une nouvelle approche éducative.

Durée: 2 heures tous les lundis et mercredis après-midi du 23 mai au 16 juin, 1977.

Coûts: sans frais

Contenu de la session: A être déterminé par les apprenants qui seront consultés, au moyen d'un questionnaire, avant le début de la session.

Grands thèmes prévus:

La gestion de la planification à long-terme.  
Le processus de la planification à long-terme.  
Techniques de la planification à long-terme, etc.

Endroit: Esplanade-Laurier

Inscription: 30 participants. L'inscription se fera selon l'ordre d'arrivée.

Langue: anglais

Si vous êtes intéressé(e), veuillez compléter la formule d'inscription ci-jointe et la faire parvenir à l'agent de formation de votre ministère au plus tard le 11 mars 1977. Pour de plus amples renseignements, prière de contacter Nicole Mendenhall, co-ordinatrice au 998-3823.

## ADDITIONAL INFORMATION

## NOTES EXPLICATIVES

It is often said that educational activities do not respond to the particular needs of the participants. An educational approach has been designed to remedy this situation. This approach consists of asking the participants: 1) to identify their personal and/or organizational needs (as they relate to long-range planning in this particular case), 2) to elaborate these needs before the educational activity, and 3) to set learning objectives derived from these needs. Two advantages follow from this approach:

- The educational activity will be designed according to the needs and specifications of the participants.
- The participants will become directly involved in the educational process. They will assume a greater degree of responsibility for their own learning, become more conscious of their needs, and benefit more from the educational activity.

This educational activity will be offered two hours a day on Mondays and Wednesdays from May 23 to June 16, 1977. This time will be preceded or followed by an additional two hours, if the participants deem it necessary. Participants could use this optional time to read, discuss and pursue objectives related to the educational activity. This time arrangement allows the participants to continue every day working activities, to keep up-to-date in their work and to keep in touch with what is happening. Furthermore, it allows the participants to integrate what they have learned into their work.

Une critique fréquemment formulée à l'endroit des sessions de formation est que ces dernières ne répondent pas véritablement aux besoins particuliers des apprenants. Afin de remédier à cette lacune, une méthodologie centrée sur l'apprenant a été élaborée. Celle-ci consiste à faire appel à l'apprenant dans le but 1) d'identifier ses besoins personnels et organisationnels (ici, en planification à long-terme), 2) d'élaborer ses besoins avant que l'activité éducative ait lieu et 3) de fixer ses objectifs d'apprentissage en conséquence. Deux avantages s'ensuivent:

- La session éducative est conçue selon les besoins et les exigences de l'apprenant.
- Ayant identifié ses besoins, l'apprenant est d'autant plus impliqué dans le processus d'apprentissage et il tire un profit d'autant plus grand de l'activité éducative.

Cette activité éducative sera de 2 heures par jour tous les lundis et mercredis du 23 mai au 16 juin, 1977. Les apprenants pourront utiliser, s'ils le désirent, une période supplémentaire de deux heures, soit avant soit après chaque session. Un certain nombre d'avantages découlent de cette répartition du temps, notamment le fait que l'apprenant a la possibilité d'intégrer l'activité éducative à son travail, de continuer de s'acquitter de la plupart de ses tâches habituelles et de se maintenir au fil des événements qui se produisent dans son milieu de travail.

STAFF DEVELOPMENT BRANCH  
DIRECTION GENERALE DU PERFECTIONNEMENT

APPLICANT Complete in quadruplicate and forward to Management Authorizing Officer  
CANDIDAT Remplir en quatre exemplaires et envoyer à l'administrateur autorisateur

Course Title - Titre du cours

Course Code  
Numéro du coursDates of course - Dates limites de cours  
Form - Du To - Au

D-J M-M Y-A D-J M-M Y-A

☐ Mr. ☐ Mrs. ☐ Miss ☐ Ms.  
M. Mme Mlle Mad.

Last of Family Name - Nom

Given Name and Initials - Prénoms et initiales

Position Title - Titre du poste

Social Insurance Number  
Numéro d'assurance socialeGroup  
GroupeLevel  
Niveau

Department of Agency - Ministère ou organisme

Code

Branch - Direction

Division

Office Mailing Address - Adresse postale au travail

Telephone - Téléphone

MANAGEMENT AUTHORIZING OFFICER: Please send the registration form(s) to:

Registrar's Office,  
177 Nepean Street, Ottawa, K1A 0M7

ADMINISTRATEUR-AUTORISATEUR: (les) feuille(s) d'inscription doivent être envoyée(s) au:

Bureau du Registraire,  
177 rue Nepean, Ottawa, K1A 0M7DEPARTMENTAL TRAINING OFFICER  
AGENT DE FORMATION DU MINISTÈRE

Name - Nom

Telephone - Téléphone

Signature

Date



Department of Communications

Ministère des Communications

18 January 1977

Dr. Mike Ryan  
Public Service Commission  
1725 Woodward Drive  
Room 104  
Ottawa, Ontario  
K1S 1N4

Dear Dr. Ryan,

The purpose of this letter is to confirm with you details concerning the conditions under which this Department will be making available to you the use of the Communications Technology Satellite (CTS) in the Communications Experiments Project.

The utilization of CTS that has been assigned to you is to be in accordance with your Experiment Plan which has been agreed between you and the Department. The use of CTS by you is to be governed by the terms and conditions attached to this letter as discussed with you by my staff.

In view of the experimental nature and complexity of the CTS Communications Experiments Project, the Department of Communications cannot warrant that your proposed experiment will take place at the time scheduled in the Experiment Plan. The Department must also reserve the right to amend the allocations of satellite time and ground terminals, at any time, for reason of system, project or experimental exigency. Be assured, however, that we will make our best efforts to adhere to the time schedule and allocations specified in your plan.

Should the terms and conditions annexed this letter be acceptable to you, such will constitute an agreement between the Department of Communications and Public Service Commission, governing the use and operation of ground terminals and use of the CTS time. Would you please advise me of your acceptance of these conditions.

I thank you for your cooperation with the Department in the implementation of this Project.

Yours sincerely,

J.H. Chapman  
Assistant Deputy Minister  
Space Program

Encl.

Proposed Terms and Conditions Governing the Loan and Operation of  
Ground Terminals and Use of CTS Satellite Time by Public Service  
Commission , hereinafter referred to as the "Experimenter".

---

1. The Department of Communications (DOC) agrees to provide the Experimenter with satellite ground terminals and useful time of the Communications Technology Satellite (CTS) as specified in the "CTS Experiment Plan" as approved by the DOC and placed on file in the Department.
2. The satellite ground terminals and other equipment provided by the DOC to the Experimenter for the conduct of the experiment is the property of the federal Crown.
3. The Experimenter agrees to provide full and reasonable protection for the security of the ground terminals and other equipment from the time of acceptance by the Experimenter from the DOC, responsibility to cease upon delivery back of the ground terminals and equipment and acceptance thereof by the DOC. The times, dates and places of acceptance and return by the Experimenter of the ground terminals and equipment are as specified in the Experiment Plan.
4. The Experimenter agrees to accord to representatives of DOC free and unlimited access to the ground terminals and equipment belonging to the federal Crown in the custody of the Experimenter for purposes of inspection, modification, repair or maintenance, such access to be at any reasonable time.
5. The Experimenter agrees not to make any alterations, modifications, or connections to the ground terminals and equipment belonging to the federal Crown, except as specified in the Experiment Plan, unless authorized to do so by DOC.
6. The Minister of Communications, hereinafter referred to as the "Minister", may amend the allocations of satellite time and ground terminals at any time for reason of systems, project or experimental exigency and undertakes to give notice of such amendments to the Experimenter whenever possible or practicable.
7. The Minister may direct that ground terminals and equipment provided by the DOC and located at any site in Canada are to be used by more than one Experimenter for the conduct of different experiments.



8. The Experimenter agrees to make use of the satellite only during the times specified in the Experiment Plan, and only for the conduct of the communications experiment, as defined in the Experiment Plan.
9. The Experimenter agrees to plan, conduct and conclude the experiment in accordance with the schedule for so doing, as specified in the Experiment Plan.
10. The Experimenter agrees to conduct the experiment in a responsible manner, giving full consideration to, and abiding by, any and all Acts, Regulations, By-laws, and other regulatory standards of Federal, Provincial, Municipal or other authorities, where these standards may affect, or be affected by, the conduct of the experiment. Further, the Experimenter agrees to give full consideration to, and abide by, criteria of a non-regulatory nature that are approved by these authorities.
11. The Experimenter agrees to pay all costs associated with the experiment, except the costs of satellite time, ground terminals and equipment provided by the DOC and costs of transportation of the ground terminals and equipment that the DOC undertakes to pay and that are so specified in the Experiment Plan.
12. The Experimenter agrees to accept responsibility for any law-suit or other action arising from or in connection with the operation of the terminals and equipment by the Experimenter and the conduct of the experiment, including all such action that may arise concerning operational and non-operational activities for which the Experimenter is responsible. The Experimenter further agrees to indemnify and save harmless the Crown from and against all claims and demands, loss, costs, damages, actions, causes of actions, suits or other proceedings by whomsoever made, brought or prosecuted, in any manner based upon, occasioned by, or attributable to the provision of the ground terminals and equipment, or any action taken or things done or maintained by virtue hereof. Further, the Experimenter agrees that the responsibility as stated herein, shall apply in the event of satellite failure or ground terminal failure excepting responsibility for physical injury or property damage occasioned by or attributable to an inherent defect in the ground terminal facilities.
13. The Experimenter agrees to transport, install, operate, maintain and remove the ground terminals allocated to the Experimenter in accordance with specifications of the DOC and as agreed and scheduled in the Experiment Plan.

14. In the event of any disagreement between the Experimenter and the DOC over the transportation, installation, operation, removal or maintenance of the ground terminals and equipment belonging to the federal Crown in the custody of the Experimenter, the DOC shall have the right to exercise complete control over such equipment as if such custody had never existed.

15. The Experimenter agrees to provide the Minister with an evaluation of the results of the experiment, as scheduled in the Experiment Plan.

16. The Experimenter agrees to acknowledge the DOC in any presentation (oral or written) regarding the experiment. In using data provided by the DOC or any of the other Experimenters, the Experimenter agrees to obtain permission of the originator before publication and to acknowledge the origin of the data in any such publication. The DOC shall obtain permission of, and acknowledge the Experimenter in publishing any data provided by the Experimenter.

17. The agreement shall have effect from the date of signing by both parties until the date of acceptance by the Minister of the evaluation report by the Experimenter, or until the agreement is terminated. The agreement terminates when:

- a) The Experimenter becomes legally incapacitated.
- b) The Minister determines that the Experimenter has failed, for any reason, to abide by the terms and conditions set forth in the agreement, or that the experiment, for reason of national interest, should be terminated.
- c) Both parties so decide and signify.

18. The terms and conditions governing the loan and operation of ground terminals and use of CTS satellite time, and the Experiment Plan submitted by the Experimenter to the DOC, may be amended with the agreement of both parties.

19. Mr. N.G. Davies, Director of the Space Communications Program Office, is the Minister's representative for the purpose of this agreement.



Dr. John H. Chapman  
Assistant Deputy Minister  
Space Program  
Department of Communications  
300 Slater Street  
Ottawa, Ontario

Dear Dr. Chapman

Thank you for your letter of January 18, 1977 confirming the conditions under which the Department of Communications is making available the Communications Technology Satellite to our Commission. This letter will serve to confirm the agreement between the Department of Communications and the Public Service Commission governing the terms and conditions for the use and operation of ground terminals and the use of CTS time.

May we also use this opportunity to extend our gratitude to Mr. George Davies and his directorate at the Communications Research Center for excellent services he has provided our two CTS projects. We look forward to continued fruitful co-operation in the future.

Thank you for your interest.

Yours truly



Department of Communications

Ministère des Communications

CRC 7503-4-2 (SCOPO)

13 May 1977

TO: HERMES COMMUNICATIONS EXPERIMENTERS

We have advised you previously, verbally, that we currently require telemetry during all SHF Communications experiments using the 200 watt tube. Every effort is being made to minimize the effect of this requirement on the experiments. NASA has been able to provide extensive daily backup when the telemetry transmitter is operating at low power. However, the NASA stations have many commitments and their time may be pre-empted by other operations. Therefore, for the time being, operation during any specific experiment period cannot be guaranteed. We request that you give careful consideration to the development of contingency plans to cover the two situations:

- a) cancellation of experiment time with some advance notice (possibly hours),
- b) cancellation of experiment time during the experiment.

We also wish to advise you that due to the current situation, a tighter control of scheduling activities is required. In particular, we will require notice by noon of the previous working day in order to implement any schedule changes, including if possible, cancellation of time.

Sincerely,

Doris H. Jelly  
Experiments Coordinator

Distribution

F-1-2

F-1-4

F-3,

P-1

U-3

U-4

File

HERMES SCHEDULE AMENDMENTSDATE: 6 May 1977EXPERIMENT: F-3AMENDMENT NOTICE NO: 1

Dr. Mike Ryan,

The following schedule change(s) refer to the schedule/

dated 17 January 1977.

<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>REMARKS</u>
THUR.	09/06/77	FROM: 1300 - 1500 (EDT) 1430 - 1630 (NFT)	
		TO: 1230 - 1430 (EDT) 1400 - 1600 (NFT)	

D.H. Jelly  
Experiment Co-ordination



MEMORIAL UNIVERSITY OF NEWFOUNDLAND  
St. John's, Newfoundland, Canada

Office of the President

August 27, 1976.

Mr. Michael G. Ryan,  
Ph. P. Project Leader,  
Staff Training by Satellite,  
Public Service Commission,  
Ottawa, Ontario.

Dear Mr. Ryan:

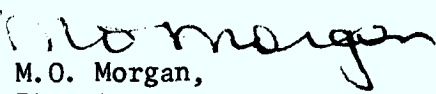
I am replying to your letter of August 6, 1976, in which you enclose copies of a letter of understanding between the Public Service Commission and Memorial University.

I am returning a signed copy as requested.

Mr. McNamara, Assistant Director of our ETV, suggested that we add the following sentence to "Specific Responsibilities." ". . . and purchase or rent the necessary video and sound equipment, specialized furniture and sound-proofing material, security equipment, and any other specialized equipment necessary for the PSC project which ETV cannot provide and which were not requested or covered in the negotiations between PSC and Memorial."

I have decided not to request this inclusion as it appears rather open-ended. I would assume that any additional equipment, etc., deemed essential by both parties for the success of the project will be provided.

Yours sincerely,

  
M.O. Morgan,  
PRESIDENT.

Agreement between  
Memorial University of Newfoundland  
and the  
Public Service Commission of Canada

OVERVIEW

This joint letter of understanding will serve as the existing authority under which Memorial University of Newfoundland and the Public Service Commission (PSC) of Canada agree to cooperate in the furtherance of their respective Communication Technology Satellite (CTS) projects. This letter reflects an immediate benefit emerging from the Communication Technology Satellite Program as it involves cooperation and cost-sharing between Memorial University and the Staff Development Branch of the PSC.

Memorial's CTS tele-medicine project and the Public Service Commission's tele-education project serve as the basis for this cooperation and cost-sharing. Both are pioneer projects in the areas of medical and educational delivery and provide us with many social and technical challenges.

BACKGROUND

Mr. Duclos, Director General, Staff Development Branch, PSC originally suggested this letter in his March 8, 1976 letter to President Morgan of Memorial University. President Morgan's reply of April 28, 1976 stated his agreement in principle to cooperation pending funding for the Memorial CTS project, however, a telex from Mr. W.C. McNamara of Memorial on June 8, 1976 rejected the PSC contract proposal due to non-funding of the Memorial project. Fortunately, the Memorial project obtained funding in July and President Morgan's letter of July 6, 1976 indicated Memorial would again consider the PSC proposal and that Mr. McNamara was authorized to complete negotiations.

The final negotiations were held on July 9, 1976 between Mr. W.C. McNamara of Memorial and Mr. M.G. Ryan of the PSC in the presence of Ms. Kathy Boyd of the Department of Supplies and Services, Mr. T. Kerr and Mr. J. Langlois of the Department of Communications, and representatives of Miller Communications Systems Ltd., engineering consultants to the PSC. Negotiations covered the August 1, 1976 - March 31, 1977 time period in detail and the April 1 - July 1, 1977 period in principle.

## SPECIFIC RESPONSIBILITIES

In the negotiations, Memorial University and the PSC agreed to specific areas of cooperation and cost-sharing. Memorial University and the Public Service Commission agree to share the installation and interconnect costs for the CTS ground station to be located on Memorial's campus. Memorial will also hire a systems operator who, in conjunction with Memorial Education Television (ETV) staff, will provide support to the PSC project under the direction of the technical director of ETV facilities. This support will include the installation, daily set-up, and maintenance of the PSC technical facilities at Memorial University. Memorial will also provide the four learning centers and those ETV facilities required for the successful realization of the PSC project.

For its part, the Public Service Commission agrees to rent four learning centers suitable for the PSC experiment for the duration of the experiment, provide for the purchase of extra technical equipment required by the ETV Center for the PSC project (listed in Department of Supplies and Services Contract with Memorial University #02P1. 8831-76-04 (05)), and provide funds for the hiring of a systems operator.

This cooperation and cost-sharing aids our respective organizations to better attain our objectives and we hope it will lead to a long and fruitful association.

In mutual cooperation, we remain,



Dr. M.O. Morgan  
President  
Memorial University



Mr. G.G. Duclos  
Director General  
Staff Development Branch  
Public Service Commission

## INSTITUT INTERNATIONAL DE LA COMMUNICATION

Le 24 janvier 1977

Monsieur Edgar Gallant  
Président de la Fonction publique  
Pièce 1902  
300 avenue Laurier ouest  
Tour ouest  
Esplanade Laurier  
Ottawa, Ontario K1N 0M7

Monsieur le Président,

C'est avec beaucoup d'intérêt que nous suivons les recherches et les expériences pédagogiques menées au sein de la Fonction publique, nous sommes particulièrement très sensibles à l'expérience de télé-enseignement qui sera tentée prochainement avec l'Université Memorial de Terre-Neuve.

Aussi, je me permets de vous faire part d'un projet dont les objectifs sont assez voisins de plusieurs des activités de votre direction générale de la formation et du perfectionnement du personnel.

En effet, l'Institut international de la communication, corporation sans but lucratif, créé en 1975 et logé à l'Université de Montréal a comme objectif de permettre aux théoriciens et aux praticiens de la communication du Canada et de l'étranger de se rencontrer dans des activités communes et de favoriser ainsi l'avancement des connaissances théoriques et pratiques de la communication. Vous trouverez ci-joint une note d'information donnant la liste des membres de cet institut ainsi que ses objectifs et ses structures.

Le projet dont il s'agit concerne la tenue d'un télé-colloque international par satellites en juin prochain. Ce télé-colloque reliera à la fois Montréal-Paris et Stanford en utilisant deux satellites de communication HERMES et SYMPHONIE. Le sujet lui-même portera sur l'utilisation des satellites à toutes les fins reliées à l'éducation, la culture et autres que les utilisations faites par les média de masse. Je vous envoie également ci-joint un document de travail qui fait état plus en détail du projet.

Cependant, pour mener à bien ce télé-colloque, nous avons besoin le plus possible de la collaboration des spécialistes canadiens dans le domaine des téléconférences et des télé-colloques. Dans votre équipe, il y a M. Mike Ryan que nous avons eu l'occasion de rencontrer à quelques reprises et dont nous connaissons les travaux par ses publications. Nous vous serions très reconnaissants si vous pouviez autoriser M. Ryan à consacrer une partie de son temps à la réalisation de ce projet. Ainsi, la participation d'une personne comme M. Ryan au comité d'organisation de ce colloque international renforcerait la participation canadienne.

Monsieur Edgar Gallant

Le 24 janvier 1977

Nous croyons que le sujet discuté ainsi que la nature même de l'expérience peuvent également apporter à vos services certains renseignements précieux susceptibles d'être utiles au projet de perfectionnement des fonctionnaires.

En outre, ce télé-colloque international va permettre de multiples contacts avec divers experts internationaux dans le domaine et notamment en Europe. La aussi je pense que ces contacts et ces échanges peuvent très fructueux.

Espérant, Monsieur le Président, que vous pourrez accéder à notre demande et nous apporter ainsi votre aide.

Je vous prie de croire à l'expression de mes sentiments les meilleurs.

Alphonse Ouimet  
Président du Conseil  
d'orientation





OTTAWA (K1A 0M7)  
le 16 février 1977

APPENDIX 7

Monsieur Alphonse Ouimet  
Président du Conseil d'orientation  
Institut international de la communication  
s/d Université de Montréal  
Casier postal 6128  
Montréal (Québec)  
H3C 3J7

Monsieur le Président,

Je vous remercie de votre lettre du 24 janvier dernier,  
au sujet de la tenue du télé-colloque international par satellites  
l'été prochain, sous l'égide de l'Institut international de la  
communication.

Il me fait grand plaisir d'accéder à votre demande et  
d'autoriser M. Michael Ryan à participer aux travaux du comité  
d'organisation du colloque. Malgré ses responsabilités pressantes  
à la Commission, M. Ryan pourra vraisemblablement consacrer jusqu'à  
deux semaines de son temps à la réalisation de cet important projet.

Comme vous le savez sans doute, la participation du  
gouvernement du Canada à des activités de cette nature se fait par  
le truchement du ministère des communications. C'est la raison pour  
laquelle, dans le but d'éviter tout malentendu possible, je me permets  
d'envoyer à M. Max Yalden, sous-ministre des communications, une copie  
de notre échange de lettres.

Je me réjouis de l'intérêt que vous portez aux activités de  
la Commission et il me fait plaisir, en accédant à votre demande,  
d'amorcer un échange d'information et de ressources avec l'Institut  
international de la communication.

Veuillez agréer, Monsieur le Président, l'expression de mes  
sentiments les meilleurs en même temps que mes salutations distinguées.

Le Président,

Edgar Gallant

c.c. M. M. Yalden

# institut international de la communication

82

## APPENDIX 8

le 15 juin 1977.

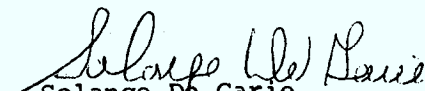
MIKE RYAN,  
Chef de projet, CFP-CTS SATELLITE '77,  
Direction générale de perfectionnement,  
1725, Promenade Woodward,  
Aselford Martin, Ottawa, Ontario.

Monsieur,

Dans le cadre de l'organisation du télé-colloque international par satellite des 9 et 10 juin derniers, nous tenons à vous remercier chaleureusement de l'étroite collaboration que vous avez apportée à sa réalisation.

Il semble que, dans l'ensemble, tout se soit bien déroulé et que globalement les objectifs fixés aient été atteints. L'équipe travaillant à l'évaluation ainsi qu'au rapport, a déjà entrepris ses travaux, et vous devriez recevoir la publication y faisant suite vers la fin de l'été.

Vous remerciant encore une fois de votre implication qui a grandement contribué au succès de ce télé-colloque, je vous prie de croire, monsieur, en l'expression de mes sentiments les meilleurs.

  
Solange De Garie,  
Chargée de projets

*Au plaisir de te revoir et merci  
pour tout.*



UNIVERSITÉ DE MONTRÉAL

Montréal, le 29 mars 1977

M. Mike Ryan  
Commission de la Fonction publique  
1725, promenade Woodward  
Ottawa, Ontario

Monsieur,

Suite à la réunion du sous-comité préparation du document du télé-colloque par satellite, le 24 mars dernier, je vous envoie, tel que convenu, le plan de travail pour la réalisation du document, tel qu'élaboré à cette occasion.

J'en profite aussi pour vous redonner la liste des expériences par satellite qui ont déjà eu lieu et qui pourraient servir dans le cadre de cette production.

Il s'agit de:

- Télé-médecine: Moose factory (Mike Ryan)  
Memorial (Michèle Côté)
- Télé-éducation: Microscopie électronique: I.A.F. (Michèle Côté)  
Planification à long terme: bi-directionnelle et  
tri-directionnelle  
(Mike Ryan) ✓  
Mouvement ouvrier au Québec (Michèle Côté)
- Télé-conférence: Syracuse - Ottawa (Mike Ryan) ✓
- Télé-travail: Régistrariat (Michèle Côté)
- Télé-documentation: (Michèle Côté)
- Télé-rencontre: (Michèle Côté)

Je vous remercie de votre collaboration et vous envoie mes  
meilleures salutations,

*Claire Valiquette*  
Claire Valiquette  
Centre audio-visuel

Document vidéo de présentation du satellite Hermès  
Plan de travail

---

I- PRESENTATION DU SATELLITE: \*Fabrication

\*Lancement

\*Description (forme)

\*Station terrestres: les antennes  
types de liaison

II- UTILISATION DU SATELLITE: \*Exemples: -télé-médecine

-télé-éducation

-télé-conférence

-télé-travail

-télé-documentation

-télé-rencontre

\*Explication de la nature des expériences

III- OBSERVATIONS:

\*Aspects politiques

\*Aspects techniques

\*Aspects financiers

\*Aspects de gestion



MEMORANDUM

NOTE DE SERVICE

TO  
A

Guy Jean

FROM  
DE

Jill Bodkin

SUBJECT  
OBJET

Satellite Project

SECURITY CLASSIFICATION - DE SÉCURITÉ
OUR FILE - N/REFFÉRENCE
YOUR FILE - V/REFFÉRENCE
DATE December 30, 1976

Thank you for your encouraging response as we discussed the proposed satellite experiment. I hope that it will be possible for René Lortie, Nicole Mendenhall, and/or Michael Ryan to work with Wally Kirkpatrick and me on the project.

Briefly, here is the status of the project:

1. NASA will make available to the Maxwell School at Syracuse University a portable transmitter and receiver with a TV studio for one month with up to 40 hours transmitting time on US days. The dates are yet to be fixed, but will be early in the new year.
2. We will conduct several (probably three) experiments which will examine interactive learning. These experiments will involve Canada-US communication. Our tentative plans include a followup to the joint BEE-Maxwell School seminar on intergovernmental relations, a fairly formal lecture with a "star" performer, and a comparison of special education programs.
3. As far as finances are concerned, NASA will provide equipment and technical support for the US end, and Wally's and my time have no costs attached. Because we have no funds, our request to you is for whatever involvement of your staff you can afford. We are exploring the costs involved in the Canadian technical support. My understanding is that we have free use of the Shirley's Bay facility, through our agreement with NASA. If we want to vary this, we will have to look for funds from participants in the experiments.
4. We hope to publish the results of the experiment.

Nicole and René have been very helpful - we met for several hours following our meeting, and they have done further exploration with CRC. We will be meeting over the Christmas period, in preparation for submission of a final plan to NASA the first week in January. I have suggested that Nicole & René come to Syracuse early in January to meet with Wally and several of our contacts at the Syracuse Research Corporation. (Why don't you try to come down too?) At that time, we can finalize plans, including our respective roles. Please be assured that if your staff are involved in the actual work on the experiment and subsequent writing, any publication will recognize their full partnership in the project.

I have already thanked Doug Rowland for your cooperation, and will send him a copy of this memo. He seemed very enthusiastic about SDB participation in

in the experiment. I see it as a valuable opportunity to get early air time, and to capitalize on some of the excellent resources available through Syracuse University. Thanks again, Guy.

Jill Bodkin

c.c. Doug Rowland



Government of Canada  
Gouvernement du Canada

## MEMORANDUM

## NOTE DE SERVICE

TO  
A

Guy Jean

FROM  
DE

Jill Bodkin

SUBJECT  
OBJET

Syracuse- PSC Project

SECURITY-CLASSIFICATION - DE SÉCURITÉ
OUR FILE-N/RÉFÉRENCE
YOUR FILE-V/RÉFÉRENCE
DATE April 15, 1977

Guy, I wanted to thank you directly for the excellence of the work of René Lortie, Nicole Mendenhall, and Michael Ryan on our recent satellite demonstration. You know from my letter to Doug Rowland how much we valued their professional competence. It is a pleasure working with them.

We will be meeting to produce a draft report April 14 and 15, with a final version to be available sometime in May, I expect. We will also do all we can to arrange a further session for those who experienced audio difficulties.

Thanks again, from Bob Iversen and Wally Kirkpatrick, as well as myself.

*Jill Bodkin (am)*

Jill Bodkin



## APPENDIX 12

Ministry of  
Government  
Services

Area code 416  
Telephone 965-0175  
22 College Street,  
5th Floor.

June 6, 1977

Mr. Guy Jean,  
Chief, Prospective,  
Staff Development Branch,  
Public Service Commission,  
Government of Canada,  
1725 Woodward Drive,  
Ottawa, Ontario K1A 0M7

Dear Mr. Jean:

Our Branch is managing the Ontario Government's CTS experimentation, which is currently in progress. We recently decided to reactivate a video teleconferencing experiment, planned and then dropped several years ago. This is now planned for July and August of this year. We do not possess a great deal of expertise in this new mode, and do not have very much time to learn its intricacies.

It would therefore help us if Mr. Mike Ryan, Project Leader of your current experiment - were able to join us in Toronto on June 20, for the purpose of reviewing our plans with us and OECA (our partner in the teleconferencing phase). Having just gone through such a program, and possessing the experience he does, I am sure that such a session would be of benefit to us.

Your cooperation in this matter will be appreciated.

Sincerely,

D.I. Towers,  
Director,  
Telecommunication Services Branch

DIT/fw

cc: Mr. Mike Ryan  
Mr. Doug Rowland



PSC - CTS EXPERIMENTAL PLAN - F-3

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CTS EXPERIMENT PLAN - F-3

A. IDENTIFICATION

- 1) Sponsor Number: F-3
- 2) Title: Staff Training by Satellite
- 3) Sponsor: Public Service Commission  
Staff Development
- 4) Experiment Leader: Director of Studies  
Chief of Experimental Programs
- 5) Contact Name: Michael G. Ryan
- 6) Contact Address: 1725 Woodward Ave.  
Room 104,  
Ottawa, Ontario  
K1S 1N4
- 7) Contact Telephone Number: 613-998-3823

## B. OBJECTIVES

The Public Service Commission Communication Technology Satellite Project has the following objectives:

- 1) to develop educational television from a one-way teacher centered communication system into a format of multi-way learner centered systems;
- 2) to explore, through the development of a satellite mediated learning methodology, new or better methods of professional development for the public service;
- 3) to explore those characteristics of satellite technology which might enable use of cost effective learning environments for managerial training of public servants in their home offices;
- 4) to study by simulation, aspects of interactive human telecommunication which facilitate or hinder learning.

## C. SUMMARY

On alternate days between April 24, 1977 and June 19, 1977, a five location audio-video satellite mediated communications link will allow remote learner centered management development between Ottawa and four locations in St-John's Newfoundland. Satellite mediated experimental groups and face-to-face control groups will learn the theories and skills of management. Learning will be compared for experimental and control groups and emphasis will be placed on cost effectiveness of satellite mediated learning.

D. MILESTONE CHART: (see Appendix 1)

E. OPERATIONAL PLAN

1) Pre-experiment operations

Preparation of the PSC-CTS project involves both educational and engineering components. Educational preparation includes:

- (1) the development of a learning model of relevance to the interactive tele-education environment, (Appendix 2)
- (2) development of satellite mediated course form, content, and evaluational strategy, (Appendix 3)
- (3) tele-education research of relevance to the interactive telecommunication learning context. (Appendix 4).

Engineering preparation includes:

- (1) basic system planning,
- (2) engineering definitions,
- (3) implementation,
- (4) installation, and
- (5) simulation (Appendix 5).

The educational and engineering preparation can be described in greater detail.

Three major theoretical approaches are being considered in the learning model: andragogy, media learning, and possibly elements of suggestology. Each may contribute to the model and will guide the course development.

A course topic that can be adapted to telecommunications media will be chosen after a needs assessment for remote management development. A resource person (and a backup resource person) preferably with a background in telecom-

munications will be chosen to work along with learning specialists in developing the overall behavioral and learning objectives for the course. Appropriate content will be chosen while specialists will be establishing evaluation parameters according to a learning evaluation model (distinct from the learning model mentioned above) currently under development. Evaluation instruments will emerge from this process and these will be tested for reliability and validity.

Technology should be available for a course simulation by September of 1976 and this simulation will serve to refine and perfect the course and the evaluational strategies. These simulations will last until the satellite system is operational.

The Carleton Place Laboratories, jointly sponsored by the CRC and the PSC, will be utilized for a program of research in intergroup satellite tele-education. This program will continue the intergroup telecommunications research program currently in progress and specific forthcoming reports will deal with the merit of self-view in audio and video telecommunication as well as the relative merit of various audio configurations.

On the engineering level, Miller Communications has been active in defining the system and costing out alternative approaches. Refinement of this process, liaison with system developers and manufacturers will continue for fiscal 1975-76 at which point contracts will be let. It is anticipated that the technology will arrive during the summer of 1976. Prior to the Satellite experiment it will be necessary to make tests to determine the acceptability of the video presentation at the Ottawa learning centre. Also pre-testing of the audio system is required since the proposed scheme may be sensitive to room acoustics, microphone and speaker placement etc.

These tests can be accomplished by simulating the learning room environment within one building. Satellite delay for the audio tests may be simulated using techniques with tape recorders. The proposed system makes use of voice switch-controlled attenuation in the audio receive path. This, together with the speaker to microphone coupling should be investigated in order to determine an acceptable level of echo, which has increased significance in a satellite system.

At St. John's, four video signals are to be multiplexed reducing the line refresh rate to one fifth of normal. The reconstructed video using a long persistence screen should be evaluated subjectively, at varying background luminance. In early 1977 the system components will be installed in Newfoundland locations at Memorial University for final pretesting and refinement.

In summary, preparations for the PSC-CTS experiment include both educational and engineering components. The development of the learning model has begun as has the remote management development needs assessment. Work has also begun on the development of an interactive tele-learning evaluation model and the research in interactive telecommunications and tele-education is continuing. The engineering consultants have been extremely busy in assuring a workable system for 1977.

## 2) Operations

### a) (i) System Description

The system provides a full duplex audio and video link between one room in 'Tower A' of Esplanade Laurier in downtown Ottawa and four rooms located at Memorial University, St. John's. The 10 ft. terminal will be parked close to the Education building at the University. The interface with the terminal will be at the audio and video terminals provided on the 'Baseband Interface

Patch Panel".

In the basement of the Education Building, there exists an equipment room, which is the centre for a R.F. cable distribution system. This serves the Education Building and others via a trunk cable system, and can be used for transmission of audio and video between the learning rooms.

A block diagram of the Memorial University installation is shown in Figure 1. The transmitted audio and videos from the four learning rooms are fed via additional cables to equipment rooms where they are combined and then fed to the 10 ft. terminal.

Figure 2 shows the distribution equipment. Video and audio signals from each of the learning rooms and the receive signals from the 10ft. terminal are modulated on to R. F. carriers, which correspond to the standard T.V. channel allocations. Each learning room operates four T.V. receivers tuned to the other four locations by appropriate channel selection.

The video multiplexing equipment consists of a high speed electronic five position switch. See Figure 3.

The video signals which must be synchronised are selected sequentially. The switch steps at the line frequency so that in each frame only one fifth of the lines from each picture is selected. With 525 lines and a 5 position switch after 5 fields each line has been selected. The fifth position could be used as an order wire or as a graphics channel.

The proposed learning room uses open microphone and speaker configuration. See Figure 4. Each speaker station is served by a pair of microphones which are connected to differential inputs of a pre-amplifier. The microphones are placed so that they are equi-distant from the speakers. This should achieve some degree of cancellation for sound from the sides. The acoustics of the room are damped to reduce speaker sound waves which can be reflected from in front of and behind the students' table. See layout Figure 5. Sounds from



in front of the microphones are emphasised by the first microphone, with some assistance from the second.

The pre-amplifiers drive a VOX unit. At a pre-set sound threshold the VOX is switched on and provides a forward path for the audio signal to the summing amplifier. If the threshold is exceeded a logic level derived from the VOX unit is used to apply some attenuation in the receive path. This function is performed by the Remote Programmable Attenuator (R.P.A.). The attenuation is designed to assist the differential microphones in reducing the echo during periods of double talk. Attenuation is preferable to simple switch, where a talker is unaware of another trying to "break in".

The attenuators in the R.P.A. operate in cascade so that attenuation increases with the number of VOX units activated. This is to offset the increase in speaker/microphone coupling when several people speak at once in the same learning room.

The interface with the 32' terminal at Shirley's Bay is at video and audio. Relay to Tower A of Esplanade Laurier is by microwave. This carries two way audio and video.

The equipment room at Esplanade Laurier houses the received video processing equipment. A block diagram is shown in Figure 6. Here the composite video is processed by the Video Demultiplexer.

The Sync Generator derives timing from the incoming composite video. Controlling signals are generated, which cause the Video Demultiplexer to sequentially switch the input to the five outputs. This is done synchronously relative to the multiplexed input. Between activated lines the outputs are supplied with line sync pulses and dark picture levels.

The outputs drive T.V. monitors fitted long persistence tubes. Since the refresh rate of the lines is only one fifth of normal the brightness is reduced. This is overcome by setting up monitors and sensitive cameras in a darkened enclosure and using the camera to "regenerate" the picture.

- a) (ii) Network Control diagram (see Appendix 6)
- b) Content description

Forty-nine participants will take part in the PSC-CTS Experiment. Of these, 24 will serve as part of the experimental group (satellite) and 24 will serve as part of the control group (face-to-face). The resource person will participate in both experimental and control groups from his Ottawa location and may introduce outside experts for selected segments of the course. The 25 satellite participants (including resource person) will be divided into five subgroups with five members each. One subgroup (with resource person;  $n = 5$ ) will be located in Ottawa and four subgroups ( $n = 5$ ) will be located in Newfoundland.

Communication will be by video (with audio) such that each participant can continually see and hear each other group of participants. It is also anticipated that a facsimile link will allow transmission of print and graphic information.

Participants will meet for a period of four hours on alternate days between April 24, 1977 and June 19, 1977. The experimental (satellite) group will have an option meeting in subgroups ( $n_1 - 4 = 5$  in Newfoundland;  $n_5 = 4$  in Ottawa) for 2 hours on transmission days (M-W-F; T-Th-S in alternating weeks) prior to air-time (possibly 8:30-10:30 a.m. Ottawa time and 10:00 - 12:00 a.m. Newfoundland time). They will then (after lunch) participate in the 2 hour learning experience by satellite with the resource person (11:30 -

1:30 Ottawa time and 1:00 - 3:00 p.m. Newfoundland time).

The control group will have an option of meeting each M-W-F between April 24, 1977 and June 19, 1977 for 2 hours (9:30 - 11:30 Ottawa time) in subgroups ( $n_{1-4} = 5$ ,  $N_5 = 4$ ).

Then they will participate in face-to-face learning experience ( $n = 25$ ) with the resource person from 2:30 - 4:30 p.m. The resource person(s) will be available to the experimental group participants ( $n = 24$ ) on the satellite system as well as to the control (face-to-face) group participants ( $n = 24$ ).

### 3) Post-experimental tasks

An evaluation team of specialists from within the Public Service Commission will analyse the results in order to present conclusions and recommendations. These could be included in a summary report for publication. Feedback will be made to the Bureau of Staff Development and Training and debriefing conferences will be held with research participants in Ottawa and St. John's. Perhaps a conference will be held for the Staff Development Branch.

### 4) Contingency plans

Should the satellite fail prior to PSC experiment, efforts would be made to acquire alternate means of satellite mediated interactive learning and simulations would continue.

Every effort has been made to utilize a system well within the scope of the satellite power, however if this is seriously reduced, the PSC experiment will revert, if necessary, to one way video and 5 way audio, or even five way

audio. The scope of the experiment would be reduced but should still produce meaningful results.

Terminal failure might produce difficulties because of the remote (Nfld.) location. The PSC will co-operate in any effort to reactivate the system.

Pre-emption would disrupt the continuity of the experiments and should be avoided except to satisfy high priority requirements. Should total pre-emption occur we would encourage efforts to acquire alternative time slots on the satellite and/or pursue the activities described in the event of satellite failure. Should partial pre-emption occur, additional satellite time would be sought, otherwise, the scope of the experiment might be reduced.

#### 5) Problem Areas

Certain technical and educational problems must be met and overcome by this project. Five location audio-video communication presents a challenging technical problem, and some pretesting will be required prior to operation. Similarly, protocols for five way human interaction will have to be refined and elaborated in order to allow non-directive learning.

There are two areas where technical performance may not be subjectively acceptable. These are:

- (1) Reproduction of a continuous picture display from a 1/5 of normal line refresh rate and
- (2) echo due to insufficient speaker to microphone isolation.

The pretesting phase will concentrate on system evaluation regarding these potential problem areas. Both areas can be studied without the use of the satellite.

- 1) The tests will study the effects of reducing refresh rate on stationary and moving images. Any tendency to produce periodic variations in the intensity of lines will also be examined. Optimization

of picture brightness setting of the long persistence monitors will be made. It is anticipated the trade-off is between a random bright line effect and picture smear.

- 2) The problems associated with open microphones and speaker configurations may require much attention. During the pretesting phase the optimum microphone and speaker placement should be determined as well as the amount of sound damping required to reach an acceptable reverberation level. The threshold settings on the VOX units should be optimized as well as the best level of attenuation in the remote programable attenuator.

In the event that picture quality is not acceptable an alternative system should be adopted. This would be a method for selecting one picture at a time to be transmitted. This would be controlled by the VOX units with an override capability. The control for the override would be in the Ottawa learning center.

If there are problems in achieving a satisfactory speaker to microphone isolation, then the use of lightweight headphones would be recommended. These could be the wireless type. If this method is adopted the voice switching is not required.

The "Hawthorne Effect", or the unique impact on the research participant of being chosen for a novel satellite mediated learning experiment may bias results. Efforts must be taken to control this effect.

Strictly speaking the small sample chosen will limit the generalizability of the findings. Should the PSC-CTS experiment provide results similar to those from the simulations, one might have more confidence in the results and cautiously generalize to other groups. This confidence would again increase were a replication of the satellite study possible.

Methodologically, the non-directive nature of the learner centered approach makes many of the standard achievement tests inoperative. Consequently, effort has been allocated for development of a non directive learning evaluation model and appropriate evaluation strategies.

Holidays and weekends may prove problematical during the experiment. The experimental (satellite) group will be operational each second Saturday and perhaps during holidays. This may cause some no show situations and efforts will be taken to reduce this problem as much as possible.

A final problem relates to communications styles which differ between Ottawa and Newfoundland. A visitor from Central Canada to Newfoundland is often struck by a communication style characterized by differing accentuation and pausation patterns. The converse is probably as noticable to the Newfoundlander. There is a difference in communication style between audio-video communication and face-to-face communication. This set of stylistic differences may present some problems in the comparative process between experimental and control groups.

#### F. EVALUATION PLAN

##### 1) Objective

To measure the effectiveness of satellite mediated learning for Public Servants in their home offices in order to validate new and better methods of professional development through the refinement of a learner centered model of satellite mediated learning.

##### 2) Methodology

An evaluational model for application to mediated non-directive learning is being developed in light of the learning model and in conjunction with the development of the course instruments. Interviews, surveys, multiple choice

questionnaires, psychometric and sociometric strategies, as well as participant observation research methods may be considered for utilization to evaluate the experiment. Pre-post, and experimental group-control comparisons may be utilized to measure appreciation of the course, as well as opinions and reactions to the form and content. In addition, participants will be encouraged to take stock of progress at specified times during the course. Finally inter and intra-group activity will be investigated.

Briefings will be held for participants after the course in both Ottawa and St. John's. Participants will be strongly encouraged to present predictions based on their experiences on future applicability of non-directive satellite mediated learning.

## APPENDICES



APPENDIX I

MILESTONE CHART

# MODEL D'APPRENTISSAGE

CALENDRIER DES OPERATIONS

DATE:

ACTIVITE		1975												1976												1977											
No	DESCRIPTION	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.0	"Andragogie"																																				
1.1	en tant que telle																																				
1.1.1	Théorie																																				
1.1.2	Pratique																																				
1.2	"Andragogie" et apprentissage médiatisé audio-visuel via satellite																																				
1.2.1.	Théorie																																				
1.2.2	Pratique																																				
1.3	Compatibilité "Andragogie" et suggestologie																																				
1.3.1	Théorie																																				
1.3.2	Pratique																																				
1.4	Apport possible de suggestologie à un modèle andragogique d'apprentissage médiatisé audio-visuel via satellite (A.M.A.V.S.)																																				

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# MODELE D'APPRENTISSAGE

CALEN R OPERATIONS

DATE:

ACTIVITE		1975												1976												1977											
No	DESCRIPTION	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	
1.5	Conceptualisation d'un modèle théorique d'apprentissage																																				
1.6	Détermination du rôle et du comportement de l'éducateur																																				
1.7	Vérification dans la pratique du modèle élaboré																																				
1.7.1	Phases de simulation																																				
1.7.2	Session de formation (A.T.S.)																																				
1.8	Formation des personnes ressources																																				

APPENDIX 2  
PSC-CTS (            ) DEVELOPMENT  
MILES (            ) PART

ACTIVITY		75	1976												1977												
No.	Description	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.0	Remote Management Needs Assessment																										
1.1	Canadian Profile																										
1.2	Newfoundland Profile																										
1.3	Newfoundland Interviews (Mgrs)																										
1.4	Newfoundland interviews (trainer)																										
1.5	Course popularity																										
1.6	Ottawa Interviews (train.)																										
2.0	Course Topic Choice																										
2.1	Needs assessment evaluation																										
2.2	Set criteria																										
2.3	Objectives																										
2.4	Choose course																										
2.5	Choose trainer(s)																										
3.0	Curriculum Development																										
3.1	Review Model																										
3.2	Determine principle																										

MODÈLE D'APPRENTISSAGE

CALENDRIER DES OPERATIONS

DATE:

ACTIVITE		1975	1976	1977
No	DESCRIPTION	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N
2.0	Suggestologie			
2.1	En tant que telle			
2.1.1	Théorie			
2.1.2	Pratique			
2.2	Suggestologie et A.M.A.V.S.			
2.2.1	Théorie			
2.2.2	Pratique			
3.0	Apprentissage médiation audio- visuel via satellite			
3.1	Théorie			
3.2	Pratique			

ACTIVITY		75		1976												1977											
No.	Description	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
3.3	Andragogical Strategy																										
3.4	Information pool																										
3.5	Develop course form																										
4.0	Course and Model Evaluation																										
4.1	Develop. Evaluation Model																										
4.2	Establisa Evaluation parameters																										
4.3	Develop. Instruments																										
4.4	Pretest instruments																										
5.0	Course & System Simulation																										
5.1	Install simulation technology																										
5.2																											
5.3	Run Course																										
5.4	Evaluation course																										
5.5	Modify & Rerun course																										
6.0	Operation																										
6.1	Identify participants																										
6.2	Match exp. & control																										

[illegible]

# APPENDIX 3

## MILESTONE CHART

ACTIVITY		75	1976												1977												
No.	Description	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.0	Produce Reports																										
1.1	Augment. Attitudes Media																										
1.2	Attitudes Assessm.																										
1.3	Moods																										
1.4	Audio Technology																										
2.0	Satellite Simulation																										
2.1	Delay echo																										
2.2	Human Communic.																										
2.3	Other																										



A L  
ENGINEERING TIMETABLE

	1975				1976												1977								
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
<u>Phase I</u>																									
ENGG BRIEF/PLAN																									
<u>Phase II</u>																									
a) O.R. & DEF.																									
b) SYSTEMS ANALYSIS																									
c) EQPT IDENTIFICATION																									
d) SPECIAL ENGG.																									
<u>Phase III</u>																									
a) PREP. SPECS.																									
b) FACILITIES																									
c) PROCURE																									
d) SPECIAL EQPT.																									
e) TECH CO-ORD.																									
f) TWO LOCATION SIMUL																									
<u>Phase IV</u>																									
a) INST - OTTAWA																									
b) INST - NEMP.																									
c) SYSTEM I/O																									
<u>Phase V</u>																									
SIMULATIONS																									

## 1.0 "Andragogie" (Education des adultes)

### 1.1 "Andragogie" en tant que telle

- 1.1.1 Théorie (Définition, Origine, évolution, principes relations avec autres théories, etc.)
- personnes ressources  
DIGEP  
ailleurs
  - autres ressources  
DIGEP  
ailleurs.

### 1.1.2 En pratique

#### 1.1.2.1 Antécédents

- Digep  
personnes ressources  
autres ressources
- ailleurs  
personnes ressources  
autres ressources

#### 1.1.2.2 Possibilités présentes

- personnes ressources
- autres ressources
- synthèse personnel

## 1.2 "Andragogie" et apprentissage médiatisé audio-visuel via satellite (A.M.A.V.S.)

- 1.2.1 Théorie  
Possibilités offertes par l'"Andragogie" et par l'apprentissage médiatisé audio-visuel via satellite (A.M.A.V.S.)
- "andragogie" en tant que telle (1.1)
  - A.M.A.V.S. (3.0)
  - personnes ressources
  - autres ressources

### 1.2.2 En pratique

#### 1.2.2.1 - antécédents

- Digep  
personnes ressources  
autres ressources
- Ailleurs  
personnes ressources  
autres ressources

## 1.2.2.2 Possibilités présentes

- personnes ressources
- autres ressources
- synthèse personnelle

## 1.3 Compatibilité entre l'"Andragogie" et la suggestologie

## 1.3.1 Théorie

## 1.3.1.1 - compatibilité des principes de l'"andragogie" et de la suggestologie

- "Andragogie" en tant que telle (1.1)
- suggestologie (2.0)
- personnes ressources
- autres ressources
- synthèse personnelle

## 1.3.1.2 - acceptation d'apports externes

- par l'"andragogie"

## 1.3.2 En pratique

## 1.3.2.1 - antécédents

- Digepe
  - personnes ressources
  - autres ressources
- ailleurs
  - personnes ressources
  - autres ressources

## 1.3.2.2 - possibilités présentes

- personnes ressources
- autres ressources
- synthèse personnelle

## 1.4 Déterminer la possibilité d'un apport de la suggestologie à un modèle d'apprentissage médiatisé audio-visuel via satellite.

- Synthèse personnelle
- "Andragogie" en tant que telle (1.1)
  - "Andragogie" et A.M.A.V.S. (1.2)
  - "Andragogie" et suggestologie (1.3)

## 1.5 Etablir, au niveau conceptuel, un modèle théorique d'apprentissage qui trace dans les grandes lignes les rôles et responsabilités des personnes (ressources ou participants) impliquées dans la session de formation de type andragogique à réaliser via satellite.

- 1.6 Déterminer d'une façon aussi précise et pratique que possible le rôle et le comportement de l'éducateur d'adultes dans une situation d'apprentissage
- médiatisé audio-visuel via satellite,
  - non-directif, centré sur l'apprenant,
  - en plusieurs petits groupes qui communiquent entre eux,
- en vue d'assurer la rentabilité maximum de ce type d'apprentissage, et ceci en
- étudiant la possibilité d'optimiser l'apprentissage par l'adaptation d'éléments provenant d'autres méthodes ou théories, notamment la suggestologie,
  - évitant les obstacles inhérents au système utilisé,
  - profitant au maximum des avantages offerts par le système utilisé.
- 1.7 Vérifier la viabilité du modèle d'apprentissage élaboré en 1.6 et apporter les modifications voulues à partir
- des phases de simulation
  - de la session d'A.T.S. elle-même
- 1.8 Etablir, le cas échéant, les besoins de formation des personnes ressources pour la session d'A.M.A.V.S. et voir à ce que cette formation soit effectivement assurée.
- 2.0 Suggestologie
- 2.1 Suggestologie en tant que telle
- 2.1.1 Théorie (Définition, origine, évolution, principes, relations avec autres théories, etc.)
- personnes ressources
    - Digep
    - ailleurs
  - autres ressources
    - Digep
    - ailleurs
- 2.1.2 En pratique
- 2.1.2.1 - antécédents
- Digep
    - personnes ressources
    - autres ressources
  - ailleurs
    - personnes ressources
    - autres ressources

- 2.1.2.2 - possibilités présentes
  - personnes ressources
  - autres ressources
  - synthèse personnelle

## 2.2 Application de la suggestologie à l'A.M.A.V.S.

### 2.2.1 Théorie

Compatibilité des possibilités offertes par la suggestologie et par l'A.M.A.V.S.

- Suggestologie en tant que telle (2.1)
- A.M.A.V.S. (3.0)
- personnes ressources
- autres ressources

### 2.2.2 En pratique

#### 2.2.2.1 - antécédents

- Digep
  - personnes ressources
  - autres ressources

#### 2.2.2.2 - possibilités présentes

- personnes ressources
- autres ressources
- synthèse personnelle

## 3.0 Apprentissage médiatisé audio-visuel via satellite (A.M.A.V.S.)

### 3.1 Théorie

caractéristique de l'A.M.A.V.S.

- personnes ressources
  - Digep
  - ailleurs
- autres ressources
  - Digep
  - ailleurs

### 3.2 En pratique

#### 3.2.1 antécédents

- Digep
  - personnes ressources
  - autres ressources
- ailleurs
  - personnes ressources
  - autres ressources

### 3.2.2 - possibilités présentes

- personnes ressources
- autres ressources
- synthèse personnelle

Schéma de plan général visant à situer  
les domaines de la recherche en méthodologie  
et en médiatisation du modèle d'apprentissage

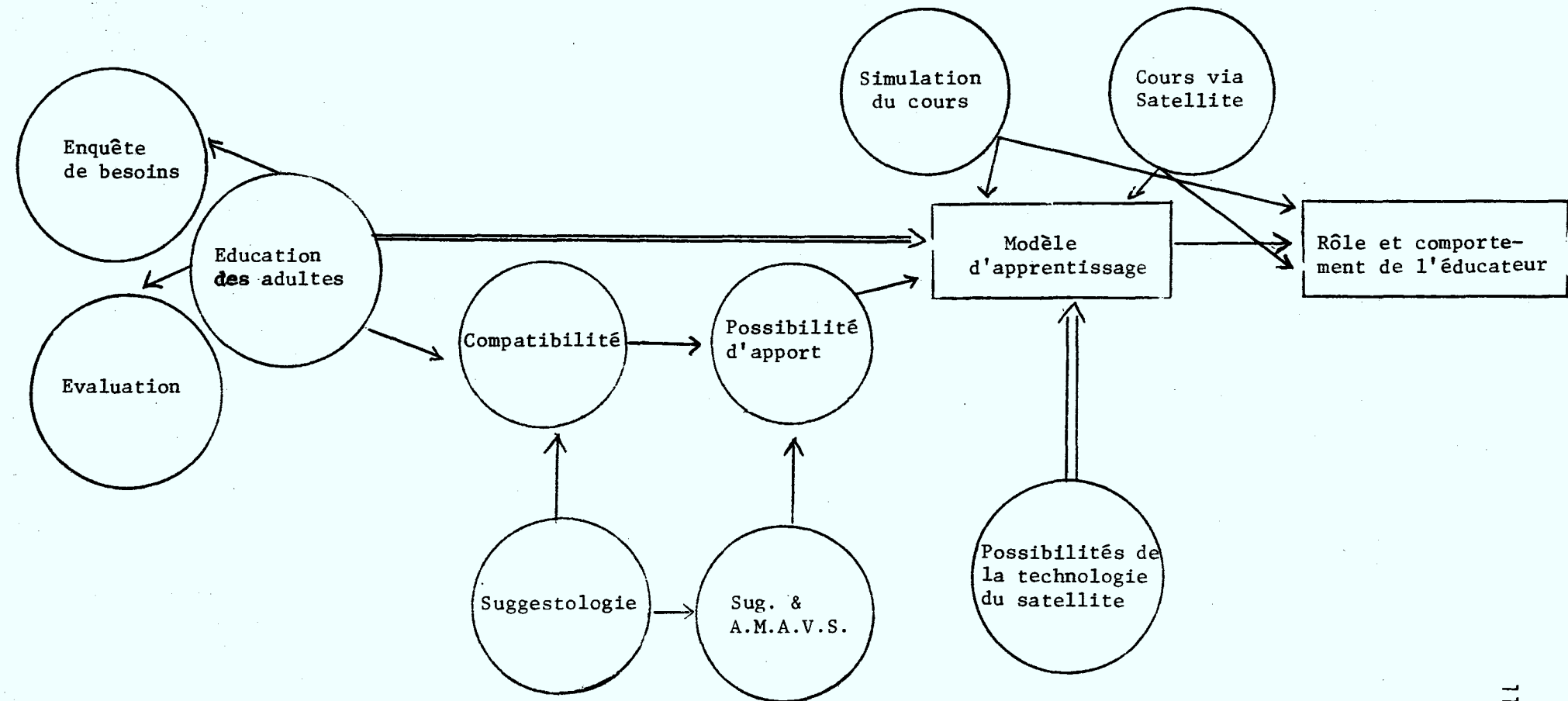


Figure 7

### APPENDIX 3

#### PSC-CTS COURSE DEVELOPMENT

##### 1. Remote Management Needs Assessment

- 1.1 Develop a demographic profile of Canadian Federal civil servants, in general, and those in Newfoundland, in particular
- 1.2 Develop a demographic profile of BSDT clients, in general, and BSDT clients in Newfoundland, in particular,
- 1.3 Conduct personal interviews with senior civil servants in Newfoundland to determine their perceptions of needs
- 1.4 Conduct personal interviews with management trainers in Newfoundland to determine their perceptions of needs
- 1.5 Determine the popularity of various management training BSDT course in Newfoundland
- 1.6 Conduct interviews with Ottawa based BSDT managers and trainers who are active in the Newfoundland Region.

##### 2. Course Topic Choice

- 2.1 Analyse the results of the needs assessment seeking (a) the level of personnel in Newfoundland with the greatest need for management development and (b) the course topic most suited to meeting that need.



- 2.2 Establish criteria for selection of course
- 2.3 Choose course and establish concrete learning objectives
- 2.4 Choose two trainer - resource persons (preferably persons with experience in management training and in mediated intergroup interaction)

### 3. Curriculum Development

- 3.1 Review the theoretical and practical components of the learning model developed for the project
- 3.2 Determine the principles to be learned over CTS
- 3.3 Determine the andragogical strategy for learning
- 3.4 Develop content information pool both for resource persons and for the research participants
- 3.5 Develop an appropriate form for the course

### 4. Course and Model Evaluation

- 4.1 Develop an evaluation model for interactive mediated learning
- 4.2 Establish evaluation parameters
- 4.3 Produce evaluation instruments
- 4.4 Pretest evaluation instruments for reliability and validity

### 5. Course and System Simulation

- 5.1 Install CTS technology in three locations
- 5.2 Operationalize these three locations

5.3 Run the course over the three location system

5.4 Evaluate the results

5.5 Modify the course and run the course again

6. Operation

6.1 Identify potential course participants

6.2 Interview course candidates so as to match experimental and control groups on the following variables: Department of Government, salary, managerial level, age, sex, I.Q., and years of service

6.3 Develop and verify schedules for experimental and control groups. Experimental groups will meet alternatively on Monday-Wednesday-Friday and Tuesday-Thursday-Saturday from 11:30-1:30 Ottawa time (1:00-3:00 p.m. Newfoundland time). It is proposed that the experimental group will meet in subgroups ( $n_{1-4} = 5$ ,  $n_5 = 4$ ) from 8:30-10:30 a.m. Ottawa time (10:00-12:00 a.m. Newfoundland time). Control groups may meet at times convenient to the participants on Monday-Wednesday-Friday schedules in Ottawa.

6.4 Present some orientation on objectives of the project and nature of the system to prepare participants to effectively utilize the technology. This description will include the learning objectives and description of the course by the half day as well as relevant course materials

6.5 Present course

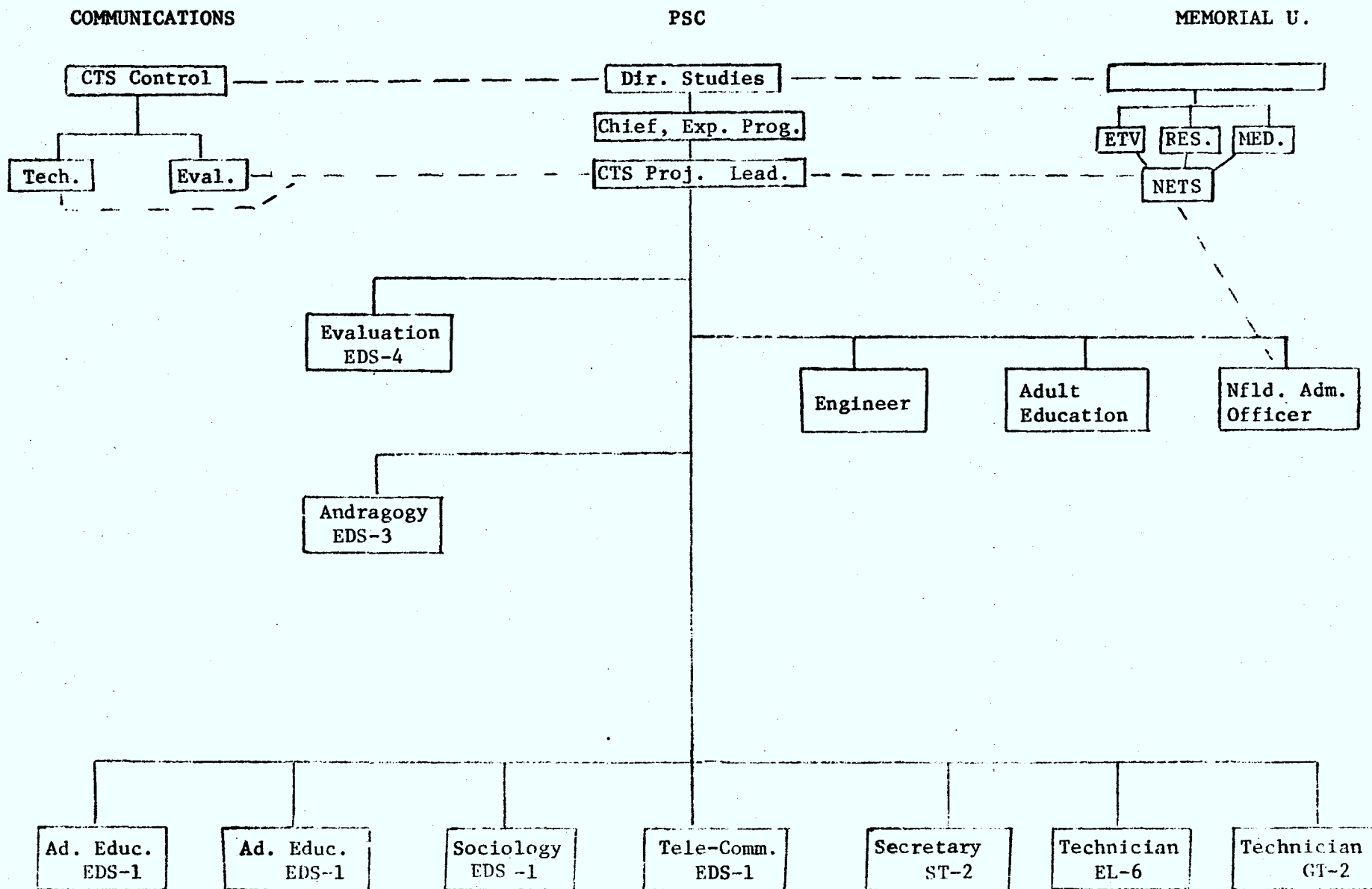
6.6 Evaluate course, learning model, and evaluation model. The

evaluation may consist of comparisons between experimental and control groups, and pre and post testing may be used.

It may also permit participants to take stock, to communicate opinions and observations on the course.

6.7 Analyse and evaluate data

6.8 Include evaluation in final project report



APPENDIX 4SATELLITE TELECOMMUNICATIONS LEARNING RESEARCH

1. Produce Reports on Intergroup Telecommunications Research Data
  - 1.1 The Influence of Augmented and Non-augmented Telecommunications Media on Attitudes Towards the Media
  - 1.2 The Influence of Augmented and Non-augmented Telecommunications Media on Attitudes Towards the Interaction
  - 1.3 The Influence of Augmented and Non-augmented Telecommunications on the Participants Moods
  - 1.4 The impact of various audio telecommunications media on research participants (work currently being treated at the Communications Research Center)
2. Conduct Research on Intergroup Learning in satellite simulations
  - 2.1 Conduct an investigation on the learning impact of satellite delay echo
  - 2.2 Investigate modes of human communication in interactive learning situations
  - 2.3 To be specified

APPENDIX 5

## ENGINEERING PHASES

1. Engineering brief, support and basic planning
2. Engineering Definition and Planning
  - 2.1 Detailed operational requirements review and service definition
  - 2.2 Transmission systems analysis and configuration (including performance/cost trade-offs)
  - 2.3 Video and audio equipment identification of techniques and hardware.
  - 2.4 Identification of special engineering and trade offs e.g. split screen, monitoring etc.
  - 2.5 Project planning and scheduling
  - 2.6 Two way simulation
3. Implementation
  - 3.1 Preparation of equipment and service specifications
  - 3.2 Engineering facilities liaison
  - 3.3 Procurement of equipment and services including review, selection and check out.
  - 3.4 Special Engineering
  - 3.5 Technical co-ordination and management
4. Installation
  - 4.1 Installation of facilities in Ottawa
  - 4.2 Installation of facilities in Newfoundland

#### 4.3 Transmission system line-up (end-to-end)

### 5. Simulation

#### 5.1 Facilities burn-in and simulations.



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