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ABSTRACT
              The information delivery system for education in
Canada is in need of improvement. While the growth in the volume and
technology of information has been great in recent years, the
problems surrounding that growth are not as serious as many writers
suggest. From a review of recent literature on education information
delivery systems in Canada, 13 themes emerge including a call for
systems analysis in assessing designing, and implementing such
systems. Suggestions are given for the development of a unique
information system for Canadian education. The paper concludes with a
recommendation for the creation of a task group on the improvement of
information and bibliographic services in Canadian education.
(DGC)

Canadian Educational Information:

Some Perspectives and Sources on Systems Design

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In recent years increasing attention has been given to the notion that the information delivery system related to Canadian education is in need of scrutiny and improvement. (I would prefer to speak in terms of the information/knowledge delivery system but that is another paper.) It is not surprising to see this interest develop in education. Such interest is only part of the more general picture focusing in other disciplines. Every discipline is facing a surfeit of information. The greatest development in information systems has been in the sciences but recent years have seen rapid development to fill needs in the social and behavioral sciences as well on a national and international basis. The concept of information as a human, psychological and sociological phenomenon worthy of study is becoming deeply rooted in most disciplines. The problem of information exhibits universal qualities. The problem is increasingly becoming one of getting the right information at the right time, to those who have need for it, in digestible quantitities.

Coupled with the notion of the importance of information has been the political reality that information is a resource to be husbanded by a country as is any other national resource. (It is an interesting, but perhaps moot point, as to whether information should be classed as a renewable or non-renewable resource.) In the words of the National Library, "The demand for information and knowledge has become the most vital commodity of the 20th Century". (1) The Science Council of

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Canada stated in the late 1960's: **BEST COPY AVAILABLE**

> Knowledge penetrates all interests and areas of our lives. It
> is vital to our existence and must be effectively utilized for
> our development. A fundamental Canadian need today is to en-
> courage the use and further the exploitation throughout all
> regions and all sectors, of the vast amount of world knowledge.
> It is the master resource. (2)

Thus, information and knowledge have become "central capital", "primary
industry", "the basis for all endeavor", "form of energy", and "central economic
resource" precipitating national plans for better organization of information
programs and processes. Information is fundamental to the post industrial society
which has rapidly become a "knowledge society". Knowledge has assumed the status
of a primary industry and GNP is increasingly knowledge-based. (3), (4), (5), (6)
The above ideas are included in scores of reports prepared by governments within
the past decade. (7), (8), (9), (10), (11), (12)

The growth of systems of various types to facilitate delivery of information
has also been phenomenal in recent years. The publication, <u>Encyclopedia of Systems</u>
<u>and Services</u> (13), provides detailed description of over 1,700 organizations con-
cerned with information products and services including data base publications,
foreign services in 31 countries, organizations and agencies providing public access
to computer readable data, networks and cooperative programs, data collection centres
and archives, libraries with SDI services, miropublishers, and research centres and
projects. Each month brings announcement of additional quantitative and biblio-
graphic data to be made available in machine readable form through some type of infor-
mation service. (14), (15), (16) A recent proposal suggests a "data bank of data
bases" to meet the need for keeping track of such developments.

Much of this systems activity has paralleled the rapid emergence since
World War II of second and third generation computer technology. It is estimated
that by 1985 two million computer terminals will be available and the computer will

become as much a part of our lives as the telephone is today. Anderla (17) predicts:

> In 1985 or 1987 the degree of automation of information will approach
> a hundred times that of today. Automated systems and networks will
> insure at least one-fourth and perhaps even one-third of all infor-
> mation transfers. Here growth will, therefore, be nearly three
> times as fast, ie., an average exceeding thirty percent per year,
> beginning at a slower rate during the initial seven or eight years
> and then suddenly accelerating after 1978-1980.

Licklider (18) suggests that by the 80's or 90's most serious intellectual work will
be done on-line in an interactive computer environment. Lancaster (19) asks, "Are
we ready for on-line information retrieval?" He argues that if we agree that it is
desirable to design and implement systems that can be used by practitioners in a
field, without the necessity for delegating to an information specialist, it follows
that these systems must be made more user oriented. It is not enough merely to
provide on-line access to a system designed basically for use by highly trained spec-
ialists. Five requirements for user oriented on-line systems are set out by Lan-
caster.

The most recent development in the series of applications for on-line inter-
active systems is the information utility concept. The marriage of nano second com-
puter technology with rapid advances in telecommunications has influenced the
widespread introduction of such utilities into society and they are growing apace.
An information utility can be defined as, "A dynamic machine readable data base
available on-line to multiple individual users through a shared communication system".
Immensely complex, fundamental public policy issues related to regulatory aspects,
social and technical issues revolving around questions of privacy, and issues related
to the communication carrier and the public interest have thus been created. (20),
(21), (22), (23), (24), (25), (26) The recent annual meeting of the American Society
for Information Science (ASIS) themed its convention around the emerging concept and
problem of the growth and development of information utilities. (27)

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Undergirding the development of information systems and networks, computers and telecommunications technology, and the information utility concept has been a decade long "hard sell" on the importance of informa'on. This has been buttressed by reams of statistics which document the informati xplosion (or, flood, as some prefer to call it) and predict dire consequences, wh..h in themselves seem to multiply exponentially, if something is not done to bring our geometrically spawning information glut under control. Various authors have evaluated the information phenomena objectively and point out some of the consequences, ie., the work force will need re-training (28), coordination among systems at all levels is vital (29), and the cost/benefit may be too minimal to allow for widespread access to information. (30) In addition, the problems of information overload and the possible threat to the psychological and emotional well being of the individual implicit in the new technology have been dramatically pointed out in sources such as Toffler's widely read book. (31)

One could be sanguine and take the position that the information explosion and its side-effects are exaggerated or one can be alarmist and engage in "doomsday" type thinking. While recognizing that documents increase at a steep rate of growth, and that an information problem has definitely emerged, I would reject the hyperbolic and promotional aspects of information explosion rhetoric -- including the information deluge and computer based panaceas. Our position should be "middle ground". It is now time to move outside the rhetoric of recent years and come to grips with the realities of the problem. Most institutions do need to take a hard look at their information delivery systems and evaluate them in light of their adequacy in delivering information, in the right form and the right amount, to the right people, at the opportune time and in as economic a fashion as possible. Education is no exception. Our complex institution is in need of scrutiny and evaluation in terms

of information delivery. We cannot afford <u>not</u> to evaluate the adequacy of the information delivery system in light of the predictions for the immediate and future impact of increases in kind and amount of knowledge. In education this has become a dire necessity. <u>This brings us back to the opening notion of this paper.</u>

Interest in the information problem as it relates to Canadian education is indicated through a number of papers which have appeared since 1970. It's a safe assumption that these papers are only the tip of the iceberg and represent the fundamental concern of many people in the education reference group. In 1971 the Canadian Teachers' Federation set out some views on the need for improvement of the information delivery system for Canadian education. (32)

> The education world in Canada is eager for information. Many teachers, principals, professors, associations, departmental and board officials are eager to keep abreast of the latest thinking in education. In particular, there is a demand for information on Canadian studies programs.

Existing inadequacies in coverage of the educational literature were presented, and development of the ERIC system described, with implications for Canadian education. Information alternatives were suggested including abandonment of the Canadian system, cooperation with ERIC, and development of a strong Canadian system.

In 1972 a paper was prepared for the Canada Studies Foundation outlining a proposal for a 16 month planning effort to produce a design for the development of a comprehensive Canadian education information system. (33) The paper developed the rationale and conceptual base for the system and three major tasks were emphasized: (1) specificiation of the type and quantity of published and fugitive information being produced relating to Canadian education and evaluation of the existing information delivery system, (2) identification of the education reference group (including producers and users) in terms of current patterns of use, future needs, and possible gaps in the existing delivery system, and (3) analysis and evaluation of existing information systems (particularly ERIC) with a thorough and

critical collating to indicate possible applications in the development of a

Canadian system. The paper emphasized development of a unique Canadian system, in

two languages, and presented detailed specifications and cost factors for accom-

plishment of the three majo. planning phase tasks. Heavy stress was placed on the

need for inter and intra-provincial cooperation across all units of the education

reference group, adequate user contact and input, structuring of advisory policy

groups, and careful planning and close coordination in the development of the system.

Auster and Lawton (34) reported the results of a project designed to eval-

uate the effectiveness of an on-line bibliographic search service, based on the

ERIC files, in meeting educational information needs in Ontario. Specific purposes

of the project included: (1) determining the nature of the material in the data

base, particularly its Canadian content, (2) elucidating the types of educators

the data base would best serve, (3) testing the feasibility of cooperative efforts

across institutions and agencies that share certain information needs, (4) comparing

machine and manual retrieval systems, and (5) determining cost factors in adopting

on-line service. Advantages and limitations of the on-line service were listed

including the well known problems related to the ERIC thesaural approach in indexing

and retrieval activities. Although it is possible to disagree with some of the

conclusions relative to the comparison of the on-line and batch approaches as set

out in the report, the report is useful in that it illustrates the problems faced

in attempting to evaluate an on-line service for possible adoption.

A working paper proposing the development of a comprehensive Information/

Knowledge Research Centre within a provincial and Faculty of Education environment was

developed by Summers. (35) The paper included: (1) discussion of information as it

relates to knowledge production and utilization and research and development in ed-

ucation, (2) information analysis and synthesis as they relate to knowledge production

and utilization, (3) models for developing linkage between producers and users and information data bases within an information transfer paradigm, (4) the use of information in problem naming and problem solving and innovation and educational change, (5) specification of user group relationships and network concepts in the development of an information system, and (6) development of a framework for research activities relating collection, organizatio i dissemination of information to problem naming and problem solving and knowledge production and utilization in education. Seven levels of activity, with related cost and resource estimates, are outlined including: (1) service within the Faculty of Education, (2) service within the university community, (3) service to province-wide and beyond users, (4) service across machine readable quantitive and bibliographic data bases and traditional library and media resources, (5) stimulation of analysis and synthesis of information as well as its collection and organization, (6) research activities, and (7) development of training programs in undergraduate and graduate education and in-service and continuing education, user training seminars and short courses, and preparation of information system personnel in education. The UBC Faculty of Education Information/Knowledge Research Centre has begun operation utilizing the ERIC tape data base as its initial file and is conducting training programs and courses related to information systems and knowledge production and utilization in education. The Centre is moving toward gradual development of the levels of service listed above.

In May of 1974 a key conference was held on the UBC campus related to bibliographic needs across Canadian society. The National Conference on the State of Canadian Bibliography addressed critical problems of bibliography, within a broad information context, in the three areas of national, regional and subject field bibliography. A position paper outlining information and bibliographic needs in Canadian education was presented by Summers. (36), (37) The paper is organized

around the following systems constitutent questions: (1) What are the size and characteristics of the reference group in Canadian education? (2) How many and what type documents are being produced by the reference group on a yearly basis? (3) How many of the documents produced by the reference group actually enter the existing information delivery system? (4) How effective are current practices in gathering, organizing and providing information about education related documents as they enter the system? and (5) What bibliographic materials have been produced in Canadian education, how can they be located, and what needs are still unmet? The paper recommended immediate intensive study of information and bibliographic needs in Canadian education and development of plans to strengthen existing services and provide new services where needed. Close cooperation across elements of the education reference group in developing an effective information service, within a systems approach, is implicit throughout the paper.

Two papers related to information needs in Canadian education were presented at the 1974 CSSE annual convention. Lawton and Auster (38) summarized their earlier evaluation of the on-line retrieval service based on ERIC files and suggested various combinations of activities to implement relevant information services for Canadian education. Meyers (39) advanced the opinion that Canadian education research efforts should be coordinated through some professional body to enable educators to contribute to and take from educational information systems. Development of uniquely Canadian data bases was also advocated.

It is possible to extrapolate certain common themes across the above papers and from other sources related to the problem.

(1) The information delivery system for Canadian education is in need of scrutiny and improvement. This is a critical national need and should have high priority when looking at information needs across Canadian society.

(2) The education user group must be carefully identified and involved from early on in the framing and eventual operation and evaluation of any information system.

(3) It is particularly critical to give serious consideration to the need for a bilingual system which provides access and service on a Canada wide basis, irrespective of geography or language. Ready and equal access to the system must be built in.

(4) Inter and intra-provincial cooperation across and within all levels of the reference group is critical for the planning and eventual success of an information system.

(5) No one institution, province, professional organization, school district or region is likely to be capable of providing the total funding needed. After careful planning, senior governments, foundations and agencies will have to be approached for funds for start-up and continuing operation.

(6) A intensive planning effort, involving careful needs assessment and representation from throughout the reference group, will be needed to produce a well designed proposal to initiate systematic coordinated development of a viable information system.

(7) Many of the elements for a successful system already exist. The need is for better use and coordination of such elements and addition of other elements to meet special needs and fill existing gaps.

(8) Consideration should be given to the need for user education in relation to whatever system is developed and to more general education for information literacy in undergraduate, graduate and in-service and continuing education activities as they relate to education.

(9) Expertise from the professional groups in education and library, information and computer science will, of necessity, need to be marshalled in the planning and operation of any information system. A pool of such expertise is readily available at the present time within Canada.

(10) Any system that is developed should be designed to coordinate, supplement and add to existing units rather than supplant units which now perform effective roles in information transfer.

(11) A rich resource of literature, experience and tested practice now exists in the field of information science and should be collated and used to meet unique Canadian needs in information system development.

(12) A systems approach would prove of greatest benefit in raising and answering the generic questions related to the design and functioning of an effective information system for Canadian education.

(13) A central agency is needed to provide an umbrella and coordinate our diverse, independent activities in the initiation and operation of a Canadian information system.

The purpose of the balance of this paper is to set out some suggestions and sources relating to item 12 only -- development of a systems approach in designing a Canadian education information delivery system. Before that task is begun,

However, I should put forth five strong categorical statements.

First. We should develop our own unique information system that is sensitive to the idiosyncratic needs of the Canadian milieu and culture. The notion has often been expressed that we should solve our information problem by tacking onto and increasing our input into existing information systems operated by other countries (notably ERIC) and at the same time somehow persuading the sponsors of such systems that they should modify their structure and procedures to accommodate our unique needs. No nation should contemplate depending on another nation to manage its information resource, particularly in sensitive areas such as education. A two pronged objective should be developed. We should of course insure that the most significant Canadian materials are systematically selected and announced in existing and future national and international information systems. However, such an arrangement will never accommodate more than a small fraction of the unique Canadian materials produced and it is imperative that we see to the development of our own well coordinated, comprehensive education information system. The second objective should receive immediate priority. Accomplishment of this objective provides the base for successful attainment of the first. Our policy should be to interface and cooperate with existing and future national and international information systems, but do so only from the base of a strong, well articulated Canadian system. This is in line with the UNESCO recommendations that international systems be built only on strong national information bases.

Second. In the development of any information system, decisions that are made with respect to the intellectual and conceptual aspects of the system are overwhelmingly the most important decisions. Irrespective of the level of analysis or the social context of information systems, they necessarily consist of three major elements: (1) a set of information conveying objects, (2) a set of users to whom

the information may be relevant, and (3) a set of transmission mechanisms for bring-
ing the two together. In many instances, the mechanistic and hardware decisions of
the information retrieval process, related in particular to (3) above, have been
over emphasized to the detriment of the conceptual and performance side of the
system. Preoccupation with technology has often relegated user needs to secondary
importance. Considerations about technology should be kept in proper perspective --
it is a means to an end -- and not allowed to outweigh conceptual factors and those
factors which focus on the behavioral aspects of the human in relation to utilization
of information. Any information system must take the inquirer himself into consider-
ation. The turning of data into information and knowledge is a personal and educa-
tional process too often ignored in systems design.

Third. In the current state-of-the-art in information system design, no
generally accepted procedures or standard paradigms exist to guide planning.
Methodology is open ended and one could begin design with any component of the
system. However, some general suggestions do exist as to the sequence of procedures
to be followed in design of a system. (40), (41), (42) This situation is in part
due to the evolutionary nature of the field of information science where it is
readily recognized that broader application of the systems approach could generate
better and more transferrable formats and methodology for systems design. We are
currently in a stage where more wide-spread application is being made of systems
concepts to design. One builds one's own paradigm but an extremely rich and readily
accessible literature is available to aid in the process.

Fourth. Information is a necessary but not sufficient condition in pro-
blem naming and problem solving in education. The utilization of information
involves subtle variables not yet fully understood. Activities in educational
problem solving occur within a sensitive communication and social change paradigm.

Merely making information available does not insure problem solution. There is little doubt that recent refinements in information delivery provide speedier access to information but little hard data are yet available on the most effective social interaction models for the optimal use of information. Too often information systems are approached with the expectation that specific answers to problems will be generated. In reality, the system does not provide answers to specific questions but merely informs the user about the existence or location of documents and aids retrieval of document references or the documents themselves.

Fifth. An effective information system must serve more than an archival function. Three objectives are possible in improving information delivery: (1) the information can be channeled into typical archival functions which include storage, development of access and maintenance and supplementation of the collection, (2) information can be "packaged" into other forms (ie., special bibliographies, reviews, position papers, state-of-the-art reports et al) based on discernable user needs and cycled through a spectrum of activities related to analysis and synthesis of information, and (3) informal activities can be stimulated to link users with the system, with those developing input for the system, and with each other. One fact is crystal clear in the current state-of-the-art relative to the development and operation of information delivery systems. Those systems which embrace narrowly defined mandates built exclusively around an archival function quietly die the death of the dinosaur. Those that realistically appraise and meet user needs and develop an information rich dissemination environment within a broad mandate usually succeed. Users should be able to tap the archival function. However, they must also be able to take advantage of products which spin-off from the archival activity and allow them access to relevant discipline oriented analysis and synthesis products. At times users also wish to communicate with other users and with expertise within the

discipline in meeting information needs.

The systems approach is a general concept (43), (44), (45) and can be reconstituted for any number of purposes. The dictionary definition suggests, "an ensemblage or combination of things or parts forming a complex or unitary whole". Ackoff (46) provides good focus on the advantages of the systems approach.

> The systems approach to problems focuses upon systems taken as a whole, not on their parts taken separately. Such an approach is concerned with total-system performance even when a change in only one or a few of its parts is contemplated because there are some properties of systems that can only be treated adequately from a holistic point of view. These properties derive from the 'relationships' between parts of systems: how the parts fit together.

A general systems model for an information system would include components such as acquisition, conceptual analysis and document representation, management system, and user utilization. Decisions with respect to the acquisition component involve selecting from the universe of information those materials to be included in the system. The acquired documents, or the document surrogates, undergo conceptual analysis by which their content is scrutinized and represented in some systematic form. The management system is organized to process the documents for retrieval and dissemination. In user utilization, the system is manipulated through the products of conceptual analysis and document analysis and document representation to obtain output from the management system. Feedback loops are structured to link the four components. Many options exist in using this general model to structure data bases for varied user needs. A key element is the selection or development of the systems language to be used in representing and retrieving documents and in assuring user searching with a high level of relevance. (47, (48) Development of the classification language is by no means a trivial problem and represents the heart of the semantic and syntactic decisions made in the development of any classification or thesaural scheme involving a pre-coordinate or post-coordinate approach.

will be a particularly critical decision in any bilingual Canadian system to be developed. Unfortunately, much of the work in information science has concentrated on the automation and efficiency aspects of the management system to the detriment of the conceptualization, user utilization and systems language components. (49), (50)

In developing a Canadian system, the need is to identify the parameters in this broad model that constitute the key questions. Experience from other efforts suggests that a first step is the specification of the fixed and variable parameters influencing design. Fixed parameters can be defined as those characteristics which are predetermined and which set limits as to what can be done. Freedom of choice exists with respect to the variable parameters and no constraints apply. For our planning purposes, all parameters should initially be considered as variable parameters. The fixed parameters in the system will emerge as the planning effort continues. Most sources would suggest that development of an information system proceeds through several phases. The <u>design phase</u> involves development of an overall plan for the system. This phase might be recycled several times until reasonable agreement is achieved by the planning group. The <u>pilot phase</u> involves try-out and modification of the planned system. The final stage is the total <u>system implementation phase</u> for the approved design.

The actual parameters to be considered in the design phase can number in the hundreds and should be grouped in large workable patterns which approximate the logical functioning of the system. Parameters to be considered in design can be garnered from the information science literature, the reported experience of operating systems, and logical analysis. A recent paper by Liston and Schoene (51) provides a useful example of a structure for the organization of fixed and variable parameters. Their scheme is based on over 300 parameters identified in their systems design efforts. Parameters are organized into <u>general parameters</u>, <u>input parameters</u>, <u>output parameters</u> and <u>internal parameters</u>. These parameters and their sub-components, along

wit' related options, constitute a useful decision matrix. The main function of

... des!gn phase in information systems development is the generation of such a

...trix indicating fixed and variable parameters, options, factors likely to affect

decisions and the like. Specification of a complete design matrix and the charac-

ter....ics for a Canadian education information delivery system is beyond the scope

of t'.is paper. However, some consideration of these parameter clusters as they

might actually be identified in the design process will perhaps provide useful

illustration of questions and decision points as they might emerge in development

of a Canadian system. It should also be pointed out that parameter clusters are

seldom mutually exclusive and there is a good deal of eventual interaction across

the components of the system at the policy and functional levels.

General Parameters. Included here would be questions related to the pur-

pose and scope of the system, its broad functions, its proposed form of business

organization and the anticipated financing arrangements.

> Background and information environment of the user group. Policy
> advisory board(s). Bilingual nature. Specific information needs
> of the user group to be served. Fields of education to be rep-
> resented. Centralized, decentralized, or combination of both.
> Location of the system and its components. Level of funding
> for planning and design phase, for the pilot and implementation
> phase. Special feasibility or information studies needed in
> planning. Human resources and staff availability. Facilities.
> Organizational and over-all management plan.

Input Parameters. Questions here would involve coverage, types of input,

acquisitions, input processing, conceptual analysis, document representation, and

classification or thesaural scheme.

> Quantity of books, monographs, dissertations, journal literature
> and fugitive and report literature produced in education.
> Possible inclusion of media and school instructional materials.
> Developing access to producers of input sources. Development
> and coordination of acquisitions network. Screening criteria
> for input. Quality control factors. Input organization, des-
> criptive cataloging and internal flow. Form of announcement
> publications for the input. Bibliographic citations. Citations

with annotation or abstract. Classification or thesaural scheme
to be used. Adopt existing model, create new model, adapt exis-
ting model. Pre-coordinate, post-coordinate. Exhaustivity of
classification. Organization of file for retrieval and publica-
tion. Training requirements for professional staff and document
analysts. Processing manual. Automation of clerical, document
representation and retrieval procedures. Hardware requirements.
Physical facilities for processing, retrieval and publication
efforts.

Output Parameters. Included here would be questions related to products,

services, specification of user audience, pricing, distribution, user feedback

provisions and standardization procedures.

Abstract and index announcement publications -- separate or
combined for published and fugitive sources. Availability,
microfilm or hardcopy or both. Document availability system
or just reference system. Use of private sector to develop
commercial spin-off publications. Copyright implications.
Pricing of services and products. On line, batch or just
reference. Retrospective searching, current awareness or
SDI. User education program. Information analysis and syn-
thesis activities. Automation of print procedures, editorial
staffing. Operating manuals and style guides. Target pro-
ducts for specific user audiences. Cooperation with producers
of educational materials, information, and media.

Internal Parameters. These parameters involve questions related to the

structure and operation of the management system and are, to great degree, idiosyn-

cratic to the type of information system developed.

Report writing for funding and advisory groups. Schedule or
policy group contacts. Provisions for cost/benefit review
of operation. Staff characteristics. Procedures for vocab-
ulary review and maintenance. Liaison with institutional and
external support units.

Liston and Schoene also suggest that most parameters will involve at least

two discernable options that may be derived from the literature or operating exper-

ience. An important part of planning is the specification of possible options for

each parameter and the variables likely to affect choice among options. Thus, a

complete picture can be developed in the planning phase of most of the choices

which must be made and their related options. Little hard evidence exists in terms

of the optical ordering of choices, but previous design efforts tend to follow a structure beginning with features of the system which are apt to be least under the control of the designers and progressing toward those features most likely to be within their control.

Other questions and examples could be added to the parameters listed above but those covered perhaps serve to illustrate the range of questions involved and the need for an organized attack on the multiplicity of interrelated decisions involved in structuring an information delivery system. Systems thinking does facilitate the analysis of service delivery systems and the determination of information needs. However, it is crucial to also recognize that a multitude of other factors enter into the policy making, planning and the associated decision structure. The planning process is iterative and continuous extending beyond the implementation of a completed design. Ongoing input is needed continually to approximate the "best fit" between social conditions, reference group needs and interests, and services and products offered. A good feedback mechanism, including sensing activities to monitor user needs, provides the best frame of reference for evaluation and decision making. Changing states, such as, values, beliefs, traditions, political and social climate, economics and changes in states of knowledge all continually impact decisions relative to determination of service priorities and delivery strategies.

I would like to conclude with one final, rather sweeping categorical statement. It's time that those involved in the Canadian educational enterprise initiate the necessary steps to develop a unique information system. It will not be done for us and we should rule out continued, negative symbiotic relationships with other national systems to solve our own information needs. We should broaden our perspective, as individuals and as members of various associations and units within the regions of the education reference group, expand our level of mutual interest

and cooperation, exert our scholarship, and move <u>now</u> to produce a system that is

worthy of our efforts and geared to the realities of education in our generation,

technically sophisticated, and -- above all -- sensitive and responsive to the

needs of clients and guided by perpetual, self regulating user studies.

With this end in mind, I would like to recommend, as I have elsewhere,

that:

> .... a task group be formed related to intensive study of this
> area. The task group should be called, Task Group on the
> Improvement of Information and Bibliographic Services in
> Canadian Education, and should pursue two basic objectives:
> (1) study the problem and estimate existing and future
> information and bibliographic needs in the subject field of
> education, and (2) produce recommendations for implementation
> that will strengthen services and lead to the development of
> new services where needed. (52)

The Task Group membership should consist of representatives from the information

science and library community and professional representation that adequately

reflects the geography, locus of activity and language and interests of the total

reference group related to Canadian education in all its phases. This recommenda-

tion received strong support from the recent National Conference on the State of

Canadian Bibliography.

The activities of such a group should ideally be sponsored and promoted

under the leadership of the major professional association concerned with and committed

to broad problem naming and problem solution in education. This is particularly

critical in light of the fact that perhaps the single, most important element in

the development of a viable information system is the attraction of long-term, large

scale, stable funding. <u>Is the Canadian Society for the Study of Education the</u>

<u>proper group?</u>

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