

A STUDY OF INSTRUCTIONAL DEVELOPMENT
KNOWLEDGE AND COMPETENCY AMONG
TEACHER-LIBRARIANS IN NEWFOUNDLAND

CENTRE FOR NEWFOUNDLAND STUDIES

**TOTAL OF 10 PAGES ONLY
MAY BE XEROXED**

(Without Author's Permission)

GENEVIEVE M. GALLANT, B.A., B.Ed.





National Library
of Canada

Bibliothèque nationale
du Canada

Canadian Theses Service

Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-55025-2

A STUDY OF INSTRUCTIONAL DEVELOPMENT
KNOWLEDGE AND COMPETENCY AMONG
TEACHER-LIBRARIANS IN NEWFOUNDLAND

BY

© GENEVIEVE M. GALLANT, B.A., B.Ed.

A thesis submitted to the
School of Graduate Studies
in partial fulfillment of the requirements
for the degree of Master of Education

Faculty of Education
Learning Resources Division
September 1989

St. John's

Newfoundland

ABSTRACT

The purpose of this study was to determine instructional development knowledge and competency among teacher-librarians in the province of Newfoundland. Resource-based approaches to curriculum are being implemented throughout Canada, and, the Newfoundland Department of Education recommends a resource-based approach to teaching and learning, although a formal model has yet to be adopted. Because this approach requires that teacher-librarians and classroom teachers work together as teaching partners in the curriculum implementation process, using instructional development in a cooperative program planning process, it was desirable to establish the level of instructional development knowledge and competency of teacher-librarians.

The Association for Educational Communications and Technology (AECT) published a task force report, in 1982, on instructional development certification which provided a list of core, performance-oriented instructional development competencies for the instructional/training development professional. These AECT core instructional development competencies were incorporated with

competencies outlined in various Canadian documents and considered necessary to implement cooperative program planning and teaching. A content analysis was performed on three Canadian documents: (1) Partners in Action: The Library Resource Centre in The School Curriculum, by the Ontario Ministry of Education (1982); (2) The 4th R: Resource-based Learning, by the Saskatchewan Teachers' Federation (1987); and (3) Qualifications for School Librarians, by the Canadian School Library Association Report (1980). This process provided fifteen instructional development competency areas to use in the examination of instructional development knowledge and competency on the part of teacher-librarians.

An initial instrument was piloted in the fall of 1988 with a group of sixty teacher-librarians attending an annual conference. This instrument was developed to gauge the level of familiarity with instructional development terminology, and to provide information to assist in the development of the main instrument.

The main instrument was a highly structured interview guide, permitting participants to respond with open-ended answers. One hundred and twenty-one teacher-librarians, working half-time or more, from twenty-six

school districts throughout Newfoundland and Labrador, participated.

The study results indicate very few teacher-librarians possessed comprehensive instructional development knowledge and competency.

ACKNOWLEDGEMENTS

The author has been fortunate to have been surrounded by a number of good friends and colleagues during the past twenty months.

Extreme appreciation is extended to Dr. Mary Kennedy who provided a wealth of knowledge, encouragement, and time throughout my entire program of studies. Thanks are also extended to the faculty and staff of the Division of Learning Resources for their assistance.

Appreciation is expressed to Carol Bonnell, Anna Rees, Bea Powers, Maurice Lewis, Trudi Brake-Danby, Noreen Braz'l, and Sandra Fowlow, the interviewers, without whose assistance this study would have been delayed, and to all the participants who gave their cooperation and valuable time.

Special thanks to a new-found friend, Jean Tobin, who provided hours of discussion and humorous moments in the writing of what became dubbed our 'fraternal theses'.

Thank-you to my husband, Tor Fosnaes, for his good nature and Barbara Gamberg for her laser printer.

I dedicate this manuscript to Arthur, who was understanding and patient despite the countless hours of my absence.

TABLE OF CONTENTS

ABSTRACT	ii
ACKNOWLEDGEMENTS	v
LIST OF TABLES	ix
LIST OF FIGURES	xi

CHAPTER

1. NATURE OF THE STUDY	1
Introduction	1
Background to the Problem	3
Statement of the Problem	5
Definition of Terms	6
Limitations of the Study	8
Summary	10
2. REVIEW OF RELATED LITERATURE	11
Historical Development of Instructional Development	11
Introduction	11
Learning Theories	13
Theories of Instruction	23
Instructional Technology	26
Instructional Development	29
Models of Instructional Development	33
Instructional Development:	
Two Archetypes	36
Historical Development of School Libraries	38
Early Beginnings	38
School Library Standards	40
Canadian School Library Standards	49
Resource-Based Teaching and Learning	52
Introduction	52

Resource-Based Approaches in Canada	53
Resource-Based Approaches in Newfoundland	55
Cooperative Program Planning and Teaching	58
Introduction	58
Canadian Models	59
Role of the Teacher-Librarian	61
Summary	68
 3. METHODOLOGY	76
Introduction	76
Instrument Development	79
Sample Group	82
Procedures of the Study	83
Data Analysis Procedures	86
 4. PRESENTATION OF THE FINDINGS	88
Introduction	88
Results of the Study	88
Demographic Information	89
Instructional Development Views	92
Instructional Development	96
Conduct Needs Assessment	100
Conduct Learner Analysis	105
Develop and Sequence Behavioural Objectives	110
Conduct Environmental Analysis	115
Determine and Sequence Content	117
Determine and Sequence Learner Activities	121
Select Appropriate Resources	124
Determine Appropriate Teaching Strategies	127
Evaluate and Revise Instructional Content	131
Create Instructional Units	137
Conduct Workshops/In-Service	140
Consult with Individuals and Groups	142

Communicate Effectively	144
Summary	145
 5. CONCLUSIONS AND RECOMMENDATIONS . . .	 147
Summary	147
Conclusions	151
Recommendations	154
 REFERENCES	 156
APPENDIX A - LETTERS	161
APPENDIX B - RESEARCH INSTRUMENTS	166

LIST OF TABLES

Table 1	
<u>Respondent Preparatory Training Programs</u>	90
Table 2	
<u>Respondent Years Experience as Classroom</u>	
<u>Teacher and Teacher-Librarian</u>	92
Table 3	
<u>Respondent Familiarity with the term Needs</u>	
<u>Assessment</u>	102
Table 4	
<u>Respondents Knowledgeable about how to Conduct</u>	
<u>a Needs Assessment</u>	103
Table 5	
<u>Respondent Familiarity with the term Learner</u>	
<u>Analysis</u>	106
Table 6	
<u>Respondents Knowledgeable of Conducting a Learner</u>	
<u>Analysis</u>	107
Table 7	
<u>Respondent Familiarity with Learning Theories .</u>	109
Table 8	
<u>Respondent Ability to Develop Behavioural</u>	
<u>Objectives</u>	112
Table 9	
<u>Respondent Familiarity with Objective Hierarchies</u>	114
Table 10	
<u>Respondent Familiarity with the terms Task Analysis</u>	
<u>and Concept Analysis</u>	119
Table 11	
<u>Respondent Consideration of a Teaching Strategy</u>	
<u>to be Superior</u>	129

Table 12	
<u>Respondents Considering Evaluation Possible without</u>	
<u>Written Objectives</u>	134

Table 13	
<u>Respondents Equating the Creation of Instructional</u>	
<u>Units with the Doing of Instructional Development</u>	139

LIST OF FIGURES

<u>Figure 1.</u> Statements Reflecting Functional and Conceptual Views of Instructional Development	93
<u>Figure 2.</u> Statements and Questions Describing Functional and Conceptual Views of Instructional Development	94
<u>Figure 3.</u> Questions Included in the Category Instructional Development	97
<u>Figure 4.</u> Questions Included in the Category Conduct Needs Assessment	101
<u>Figure 5.</u> Questions Included in the Category Conduct Learner Analysis	105
<u>Figure 6.</u> Learner Characteristics and Importance Rating in Conducting a Learner Analysis	108
<u>Figure 7.</u> Questions Included in the Category Develop and Sequence Behavioural Objectives	111
<u>Figure 8.</u> Questions Included in the Category Conduct Environmental Analysis	116
<u>Figure 9.</u> Elements of Environmental Analysis and Relative Importance Rating	116
<u>Figure 10.</u> Questions Included in the Category Determine and Sequence Content	118
<u>Figure 11.</u> Questions Included in the Category Determine and Sequence Learner Activities	121
<u>Figure 12.</u> Questions Included in the Category Select Appropriate Resources	124
<u>Figure 13.</u> Questions Included in the Category Determine Appropriate Teaching Strategies	128
<u>Figure 14.</u> Questions Included in the Category Evaluate and Revise Instructional Content	132
<u>Figure 15.</u> Questions Included in the Category Create Instructional Units	137

<u>Figure 16. Questions Included in the Category</u> <u>Conduct Workshops/In-Service</u>	141
<u>Figure 17. Questions Included in the Category</u> <u>Consult with Individuals and Groups</u>	142
<u>Figure 18. Question Included in the Category</u> <u>Communicate Effectively</u>	144

CHAPTER ONE

NATURE OF THE STUDY

Introduction

Twentieth century society is characterized by vast amounts of information increasingly available through electronic and digital media. The British Columbia Teacher-Librarians' Association (1986) produced a document, Fuel for Change, in which John Naisbett is quoted:

Between 6,000 and 7,000 scientific articles are written each day. Scientific and technical information now increases 13%, which means it doubles every 5.5 years. But the new rate will soon jump to perhaps 40% every year because of new, more powerful information systems and an increasing population of scientists. This means that data will double every twenty months (p. 1).

Advances in technology are astounding. For example, compact laser discs now contain entire data sets such as the Encyclopedia Britannica, library catalogues, and the Oxford English Dictionary. Microcomputers which are capable of storing massive amounts of information are found in North American homes, and software sales for them are growing annually.

This "information explosion" has great influence on all social structures, including education. Canadian curriculum developers are concerned with how to provide

the necessary knowledge and skills to function effectively in a changing, technological, and information-rich world.

There is a general recognition by educators that traditional teacher-based education, where the teacher is the prime source of knowledge, is no longer adequate to meet modern students' needs. Howson (1970) writes, "the importance of imparting factual knowledge about 'what is' therefore tends to diminish with a growing belief in the impermanence of the present. 'Knowing' is less important than being equipped to 'find out for oneself' (p. 6). Curriculum developers have recently placed emphasis on resource-based learning, an innovative approach concerned with learning how to learn, select, evaluate, and utilize information.

In Canada, resource-based approaches to curriculum development are widely accepted. Four provinces (Ontario, Alberta, British Columbia and Saskatchewan) promote it in their educational systems. The Ontario Ministry of Education (1982) first used the term 'resource-based learning' in a curriculum guideline, Partners in Action: The Library Resource Centre in the School Curriculum. The guideline stresses cooperation between the principal, classroom teachers, and the teacher-librarian in the

creation of resource-based programs. It recognizes that the teacher-librarian and classroom teacher must work together as teaching partners in the development and implementation of appropriate teaching and learning activities. The three other provinces use the Ontario model as the basis for their educational goals and objectives.

The Newfoundland Department of Education recommends a resource-based approach, but has not yet adopted a formal model. Provincial curricula stress the approach in curriculum guides, course descriptions, and authorized texts from kindergarten to senior high school. It is recognized that the textbook is an important resource but not the only resource.

Resource-based programs require a wide variety of learning resources and a teacher-librarian who is both a learning resource specialist and a qualified teacher. The teacher-librarian works with the classroom teacher in the curriculum implementation process.

Background to the Problem

The resource-based approach to learning which is advocated by Branscombe and Newsom (1977) in Resource Services for Canadian Schools, the four provincial

models, and the Newfoundland Department of Education, involves more than simply providing resources. Systematic planning, development, and utilization of those resources is required. Teachers need to be able to establish objectives, analyze strategies, initiate and develop appropriate learning activities, select and effectively use learning resources, and develop appropriate evaluation procedures for the student and the instructional program. Branscombe and Newsom (1977) suggest "To expect a classroom teacher to implement an individualized curriculum on his own is to expect the impossible. Every teacher requires the help of a teaching associate, namely a learning resource teacher" (p. 11).

To implement a resource-based program the school library function is moved from its traditional place at the periphery of the school system to the centre, where it functions as an integral part of the school curricula. The teacher-librarian is responsible for the selection, organization, administration, and appropriate use of learning resources as required by the classroom teacher. The primary function of the teacher-librarian is to help the school achieve its educational objectives by working in partnership with classroom teachers.

To plan resource-based units cooperatively with the classroom teacher, the teacher-librarian must possess skills in instructional development. Teacher-librarian responsibilities include curriculum development, implementation, and evaluation; designing in-service education; analyzing effective learning resources; consulting in the planning of effective learning activities; and managing a learning resource centre.

Statement of the Problem

Since teacher-librarians are expected to work with classroom teachers in designing instructional units and modules, it is necessary that they have competencies in instructional development. Yet traditional training programs for teacher-librarians are offered by Schools of Library Science, with the focus of these programs being librarianship - the study of information acquisition, storage, and retrieval.

In the province of Newfoundland for the past decade there has been a graduate program for teacher-librarians offered through the Faculty of Education at Memorial University of Newfoundland. One basic course in instructional development is required on the program. With the change in the role of the teacher-librarian, a

change required by the resource-based approach, it is important to establish the level of instructional development competency of teacher-librarians. It was this concern which guided this study. The purpose of this study was to establish the level of instructional development knowledge and competency of teacher-librarians in the province of Newfoundland. Since only those teacher-librarians employed a minimum of half-time in the school library could be expected to implement a resource-based approach, it was this group of 128 who were the focus of this study.

Definition of Terms

The following terms and definitions apply for the purpose of this study.

Instructional Development. (used interchangeably with instructional design and instructional technology). A systematic approach to the design, production, evaluation, and utilization of complete systems of instruction, including all appropriate components and a management system for using them.

Teacher-Librarian. (Used interchangeably with librarian, library media specialist, media specialist and learning resource teacher). A qualified professional

teacher who is responsible for the organization, administration, planning and implementation of a school library program.

Resource-based Teaching and Learning. Planned educational programs that involve the student in the meaningful use of a wide range of print and non-print resources.

Educational Technology. A complex, integrated process involving people, procedures, ideas, services and organization for analyzing problems, and devising, implementing, evaluating and managing solutions to those problems in all aspects of human learning.

Systems Approach. An operational system which synthesizes and interrelates the components of a process within a conceptual framework, insuring continued, orderly and effective progress toward a stated goal.

Learning Theory. A systematic, integrated outlook with regard to the nature of the process whereby people relate to their environments in such a way as to enhance their ability to use both themselves and their environments more effectively.

Theories of Instruction. Statements about what instructors should do in order to teach, or more

precisely, in order to meet a given educational objective with maximum efficiency.

Cooperative Program Planning and Teaching. The process in which the teacher-librarian and the teacher work as partners in the instructional development process to cooperatively design and teach units of study.

Limitations of the Study

In the design and implementation of this study the following limitations were recognized.

1. There is an ideal established for the role and function of the teacher-librarian based in the national standards and the four provincial models. In Newfoundland there is no established model; however, it is assumed the national standards and provincial models apply to Newfoundland teacher-librarians.

2. This study explored teacher-librarians' instructional development knowledge and competency only. According to provincial models and national standards, teacher-librarians and classroom teachers should work as partners in the instructional process. This study does not explore the instructional development knowledge and competency of classroom teachers.

3. In the absence of existing instruments, those developed were tested for the first time in the implementation of this study.

4. The instrument attempts to measure teacher-librarians' instructional development knowledge through a series of questions on core competencies of instructional development. Knowledge of instructional development as measured by the instrument is equated with knowledge of the algorithm which underlies all instructional development models. This study does not explore teacher-librarians' tacit knowledge of instructional development.

5. While pilot testing of an initial instrument was undertaken to identify technical terminology which might be problematic, and to clarify language for respondents, the researcher felt that teacher-librarians as highly trained professional educators would be familiar with terminology common to the professional literature of education. Use of such terminology may have impacted upon respondents' ability to answer specific questions.

Summary

This study provides the results of research findings collected in the spring of 1989 regarding instructional development knowledge and competency among teacher-librarians in the province of Newfoundland.

Chapter Two is an historic overview of instructional development as a field of study. In addition to instructional development models and approaches, it provides an historic overview of school libraries and the role of the teacher-librarian, an overview of American and Canadian school library standards, provincial models, and an examination of Newfoundland curriculum guides which cite examples to demonstrate the resource-based approach to teaching recommended in this province. The literature cited provides ample evidence to demonstrate that successful implementation of this approach requires that teacher-librarians be knowledgeable about instructional development.

Chapter Three describes the methodology of the study and the data gathering instruments which were developed.

Chapter Four provides the analysis of the data in summary form.

Chapter Five presents a summary of the study, with conclusions and recommendations for further study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Historical Development of Instructional Development

Introduction

According to Diamond (1980) the term 'instructional development', an application of the field of educational technology, first appears in a 1961-1965 Michigan State University project report entitled Instructional Systems Development: A Demonstration and Evaluation Project. Directed by Dr. John Barson, the project produced one of the earliest instructional development models, but it was not until 1971, at the Association for Educational Communications and Technology annual convention, that instructional development was identified as a separate, professional endeavour (p. 51).

Modern instructional development does not represent a completely new or innovative concept, rather it is an "evolutionary step as people seek to improve their educational enterprise by making it more effective, efficient, and humane" (Knirk and Gustafson, 1986, p. 3). Instructional development has many historic influences which, while developed independently from each other, have merged to shape the field of instructional technology.

Diamond (1980) states instructional development "draws on the applied research in organizational management, system design, change strategies, needs assessment, learning theory, educational testing, and media design and application" (p. 51). Saettler (1968) in delineating instructional technology, traces its beginnings to the Athenian Sophists as "they were probably the first professional teachers, who, by their systematic analysis of subject matter and organization of teaching materials, laid the groundwork for a technology of instruction" (p. 23). He further states "it would be futile to designate any particular event or date to mark the beginning of a science or a technology of instruction" (p. 47). Since the 1950s, the field of instructional technology has been delineated through the synthesis of three separate developments:

1. [the notion of] designing instruction directly for the student instead of designing audio-visual materials for teachers to use in their presentations.
2. Benchmark developments in learning theories as identified by B. F. Skinner ... and others.
3. The influence of World War II and the later advancing hardware technology, which required quick task analysis procedures, effective training, and new communications technologies; often labelled the "systems approach". (Knirk & Gustafson, 1986, p. 1)

The synthesis of these three developments, namely, communication theory, theories of learning and instruction, and systems theory, is examined in tracing the history of instructional development.

Learning Theories

Instructional development has been influenced by developments in the behavioural sciences. Saettler (1968) states "a true science of behaviour, and especially learning theory, began to emerge from which applications to a technology of instruction might be anticipated" (p. 48).

Bigge (1982), describing learning theory as "a distinct area within theoretical psychology" defines it as "a systematic integrated outlook in regard to the nature of the process whereby people relate to their environment in such a way as to enhance their ability to use both themselves and their environments more effectively" (p. 3). Lefrancois (1982) defines learning theory as "a subdivision of general psychological theory as it deals with the question of how behavior changes" (p. 11). Since the seventeenth century several different learning theories have developed; their aim being to

understand the learning process, to develop techniques to transmit information and to control learner behaviour.

Early Theorists. Three mental discipline theories, developed prior to the twentieth century, are still influential in today's schools: Theistic and Humanistic, Natural Unfoldment, and Apperception. The primary element of the first is that "learning consists of student's minds being disciplined or trained" (Bigge, 1982, p. 8). Natural Unfoldment is the extreme opposite as it is "a procedure within which a child unfolds what either Nature or a Creator has enfolded within him" (Bigge, 1982, p. 9). Apperception theory is idea-centered learning, "a process of new ideas associating themselves with old ones" (Bigge, 1982, p. 35).

According to Bigge (1982), these have a common characteristic, "All were developed as nonexperimental psychologies of learning" (p. 23); that is, they cannot be evaluated scientifically. Early twentieth century psychologists and educators became fascinated with the potential of the scientific process in education, while mental disciplinarians insisted "science could not be applied in such a human enterprise as education" (Bigge, 1982, p. 31).

Twentieth Century Learning Theories. Modern learning theories are classified in two broad categories:

(1) Stimulus response conditioning theories of the behaviourist families and (2) cognitive theories of the Gestalt-field family.

Behaviourists, also called stimulus-response (S-R) theorists, consider learning "a change in observable behavior, which occurs through stimuli and responses becoming related to mechanistic principles" (Bigge, 1982, p. 9). Lefrancois (1982) states, "Behaviorism ... can explain learning and behavior only in terms of rules that govern the relationship between observed physical events" (p. 11).

Gestalt-field theorists view learning as "a process of gaining or changing insights, outlooks, expectations or thought patterns" (Bigge, 1982, p. 9). According to Lefrancois (1982), cognitivism refers to "the work of psychologists who have abandoned much of the earlier concern with external, observable behavioral components. They have ... become increasingly preoccupied with the organization of knowledge, information processing, and decision-making behaviour" (p. 11).

Both families are essentially protests against inadequacies and inconsistencies of earlier psychological

systems "developed as nonexperimental psychologies of learning ... [whose] basic orientation is philosophical or speculative" (Bigge, 1982, p. 23). Behaviouristic and the Gestalt-field approaches are "scientific approaches to the study of human beings and assume people's basic moral proclivity to be neutral" (Bigge, 1982, p. 49).

Behaviouristic Theories. Edward Thorndike, an American educational psychologist whose behaviouristic psychology was called connectionism, "fashioned the first scientific learning theory and established empirical investigation as a basis for scientific instruction" (Saettler, 1968, p. 48). He developed a Stimulus-Response (S-R Bond) theory as an explanation of learning according to the laws of readiness, exercise, and effect. His studies showed the significance of individual differences and in his attempts to measure these differences, he made "an important contribution to the field of educational measurement" (Good & Teller, 1973, p. 404). Bigge (1982) notes Thorndike's theory of learning implies that "through conditioning, specific responses come to be linked with specific stimuli" (p. 53). Thorndike's contributions are "the historic starting point for study or analysis of modern instructional technology" (Saettler, 1968, p. 53).

John B. Watson, another behaviourist, is recognized as "the founder of the behavioristic movement in psychology, not only because he coined the term ..., but also because he developed its basic concepts in his own theorizing" (Lefrancois, 1982, p. 30).

Watson, more so than Thorndike, "felt psychology was based on the concepts of physics and chemistry" and his work followed that of Pavlov, namely, learning is "a process of building conditioned reflexes through the substitution of one stimulus for another" (Bigge, 1982, p. 54).

Thorndike and Watson influenced the neobehaviourists whose concerns with Stimulus-Response are similar, but who move towards the cognitive approach as they "attempt to deal with events that intervene between stimuli and responses" (Lefrancois, 1982, p. 27). Essentially neobehaviourists assume life can be explained in mechanistic terms. They differ from the original behaviourists in four ways:

1. less emphasis is placed upon the operation of the brain and nervous system;
2. in their experimentation, they focus attention more upon response modification than upon stimulus substitution;

3. they attempt to explain behavior that is purposive ... and they have tended to develop mechanical explanations for apparent purposiveness;
4. their approach is more holistic. (Bigge, 1982, pp. 56-57)

Neobehaviourist theories have had the greatest influence on modern instructional strategies.

Neobehaviourism. Skinner, Gagné, and Bandura are neobehaviourists whose work has had considerable influence on the field of instructional development.

The work of B. F. Skinner is considered a modern extension of stimulus-response psychologies of Thorndike and Watson. Skinner developed a psychological theory of operant conditioning behaviour (Saettler, 1968, p. 71). Bigge (1982) defines operant conditioning as "the learning process whereby a response is made more probable or more frequent: an operant is strengthened - reinforced" (p. 110).

Skinner's work focused on techniques and methods to increase learning by applying stimulus-response psychology principles to human instruction. Saettler (1968) says Skinner "guided the mainstream of developments in programmed instruction during the late fifties and early sixties" (p. 73). Skinner's concept of programmed instruction states that, for the learner to

become competent in any discipline, "[the content] must be divided into a very large number of small steps and reinforcement must be contingent upon the accomplishment of each step" (Saettler, 1968, p. 73). He also believed learners should be permitted to proceed at their own pace.

Lumsdaine (1964) states an important influence of Skinner's work has been "to foster a shift away from experimental studies ... towards a greater emphasis on the management of efficient learning conditions designed to bring about desired forms of behaviour" (p. 400).

According to Kemp (1985), Skinner's theoretical views of learning and their application in programmed instruction "have been most influential for the emergence of the instructional design process" (p. 4).

Robert Gagné's theory is an eclectic mix of behaviourism and gestalt theories. Romiszowski (1981) states Gagné "has taken ideas from the behaviourist camp, the gestalt camp, the humanist camp and, more recently, from the cybernetics camp and combined these ideas into one theoretical approach to the design of instruction" (p. 37). Gagné's concept of learning is based on 'learning hierarchies' each of which considers what is to be learned and the required prerequisites. Bigge (1982)

points out the purpose of psychology for Gagné is "to observe conditions under which learning occurs and to describe them in objective terms" (p. 139). Gagné is noted for eight conditions of learning which describe "distinguishable classes of performance change or learning and the corresponding sets of conditions for learning that are associated with each of them" (Bigge, 1982, p. 142).

He developed a behaviouristic approach to the psychology of learning which is used "to underpin the mechanistic instructional technology that is associated with behavior modification and performance - or competency-based evaluation" (Bigge, 1982, p. 139).

Albert Bandura is a neobehaviourist whose social learning theories "consist of a blending of behaviouristic reinforcement theory and purposive cognitive psychology aimed at a balanced synthesis of cognitive psychology with the principles of behavior modification" (Bigge, 1982, p. 155). Bandura depicts learning as centered in the reinforcement process. Learning is "the process of internal representations of behavior being construed through informative feedback resulting from one's direct behavior, ore's observation of examples of behavior in other people, and the

consequences of both" (Bigge, 1982, p. 161).

Cognitive Field Theory. The second family of contemporary learning theories belong to Gestalt-field psychology. Developed in Germany in the early twentieth century by philosopher-psychologist Max Wertheimer, the main idea of Gestalt theory lies in the concept that "an organized whole is greater than the sum of its parts" (Bigge, 1982, p. 58).

Cognitive field theory also draws heavily on the field psychology of Kurt Lewin (1890-1947) who focused his study on human motivation. Eigge (1982) states "his field theory was developed not as a theory of learning but more as a theory of motivation and perception" (p. 170). Saettler (1968) notes that Lewin's field theory of learning can be used as the starting point for "the technical analysis of instructional communications", and that his concepts and experimental techniques "have had an important influence on modern instructional technology" (p. 70).

Other cognitive psychologists whose learning theories influenced education and instructional development are Jerome Bruner and David Ausubel.

Bruner's principal concern is understanding "how people actively select, structure, retain, and transform

information and how they go beyond discrete information to achieve generalized insights or understandings" (Bigge, 1982, p. 301).

Learning, for Bruner, is the connecting of like things and linking them into structures that give them significance. Bruner sees learning involving "three simultaneous processes, (1) acquisition of new information, (2) transformation of knowledge, and (3) check of the pertinence and adequacy of knowledge" (cited in Bigge, 1982, p. 232).

Bruner has been closely identified with learning by discovery. His approach to discovery learning is characterized by three stages:

The first level is the enactive level, where the child manipulates materials directly. He then progresses to the iconic level, where he deals with mental images of objects but does not manipulate them directly. Finally he moves to the symbolic level, where he is strictly manipulating symbols and no longer mental images of objectives. (Romiszowski, 1981, p. 173)

Ausubel's theory is a cognitive attempt to explain meaningful verbal learning. He uses the concept of cognitive structures which "consist of more or less organized and stable concepts (or ideas) in a learner's consciousness.... the nature of the organization is assumed to be hierarchal" (Lefrancois, 1982, p. 104).

Romiszowski (1981) states "Ausubel has been a powerful influence on instructional thinking" (p. 173). Ausubel's sees that "instruction should proceed from the most general and inclusive towards details of specific instances" (Lefrancois, 1982, p. 105).

One instructional technique Ausubel describes is the use of advance organizers. Lefrancois (1982) states "these are concepts or ideas that are given to the learner prior to the material actually to be learned.... their intended function is always to enhance the learner's abilities to organize new material, and consequently to learn and to remember it" (p. 109).

According to Lefrancois (1982), Bruner advocates that "learners should organize material for themselves", but Ausubel advocates "the material can be organized more profitably by the teacher and presented to the student in relatively final form" (p. 97).

Theories of Instruction

The learning theories discussed in the previous section are descriptions of how learning takes place. They have influenced the field of instructional design, but a major criticism of learning theories centres around their descriptive nature. Those concerned with the

development of instruction need prescriptive theories (Hartley, 1978, p. 41). Dissatisfaction with the descriptive nature of learning theory led, in the 1960s, to the development of theories of instruction.

Annett (1964), states "theories of instruction are statements about what instructors should do in order to teach, or more precisely in order to obtain a given educational objective with maximum efficiency".

Gagné and Bruner are two leading theorists whose efforts to develop theories of instruction, based on their learning theories, have guided instructional development theory.

Gagné is considered most influential because his theory makes "broad assumptions about learning and teaching which are testable in practical situations" (Hartley, 1978, p. 42). His contributions have tied together three ideas: "(i) that subject matter has a hierarchical structure, (ii) there are three different kinds of learning (hierarchically arranged), and (iii) that there are different kinds of teaching methods which can be linked up appropriately with different kinds of learning" (Hartley, 1978, p. 42). Gagné views instruction as:

a matter of a teacher making sure that each student has the prerequisite capabilities for the learning task before him, stimulating the

use of the capabilities that the learner has at his disposal, and arranging the proper conditions of learning that are external to the learner. (Bigge, 1982, p. 143)

Bruner states that a theory of instruction should take into account "(1) the nature of persons as knowers, (2) the nature of knowledge, and (3) the nature of the knowledge-getting process" (Bigge, 1982, p. 240).

He sees educators as providing "students with opportunities to learn skills in problem solving by giving them a chance to develop these skills on problems that, for them, have an inherent passion ..." and that "education should concentrate more on the unknown and the speculative, using what is known as a basis for extrapolation" (Bigge, 1982, p. 240).

Bruner's theory of instruction involves five major aspects:

1. the optimal experience to predispose learners to learn;
2. a structuring of knowledge for optimal comprehension;
3. specification of optimal sequences of presentation of materials to be learned;
4. the role of success and failure and the nature of reward and punishment;
5. procedures for stimulating thought in a school setting. (Bigge, 1982, p. 241)

Learning theories are concerned with how people learn and how changes in behaviour result from an experience, while theories of instruction are concerned

with the application of what is known about human learning to the instructional process.

Instructional Technology

The audiovisual movement is a twentieth century development, although it has precursors in the 1600s with the ideas of Comenius and in the 1800s with those of Pestalozzi. They proposed using materials other than written instruction. Comenius proposed that, since we learn through our senses, "real objects and illustrations should be used to supplement oral and written instruction" (Reiser, 1987, p. 13). Pestalozzi recommended 'object teaching' where the learner makes direct contact with objects, since "words have meaning in relation to concrete objects, and therefore learning should proceed from the concrete to the abstract" (Reiser, 1987, p. 13).

Early in the twentieth century the audiovisual movement was called "visual instruction" or "visual education". Between 1914 and 1923 considerable growth in visual instruction resulted from technological advances in photographic film, radio, moving pictures, and sound recording. These "served to expand the focus of the

movement from visual to audiovisual instruction" (Reiser, 1987, p. 14).

Audiovisual materials were widely used in military and industrial training programs during World War II. It was here the first successful application of audiovisual instruction for large groups occurred and as Reiser (1987) notes: "audiovisual devices were seen to be successful in solving the problems of training effectively and efficiently large numbers of individuals with diverse backgrounds" (p. 15).

The military effort brought audiovisual technology, equipment, programs, and ideas into the mainstream of instructional technology. But for a number of years there remained "a separation between the audiovisual movement and the theoretical disciplines of instructional technology" (Saettler, 1968, p. 194). The development of military instruction films during World War II occurred without reference to psychologically-based instructional theory. Lumsdaine (1964) states "such theorization seems to have been introduced more as a 'post hoc' rationalization for audiovisual instruction than as a direct contribution to the design of instructional materials or hardware" (p. 378).

After the war, research programs were conducted to determine how audiovisual materials could affect learning. These were "the first concentrated efforts to identify principles of learning that could be used in the design of audiovisual devices" (Reiser, 1987, p. 15).

Audiovisual instructional techniques used primarily for group or mass presentation, with emphasis placed on technology and its operation rather than the instructional content, continued in this manner until the 1960s. In 1961 James Finn and others formed a commission to define the audiovisual instruction field and the terminology associated with it. The commission indicated people in audiovisual instruction should be primarily concerned with "the design and use of messages which control the learning process rather than with the audiovisual devices that traditionally had been the focus of the field" (Reiser, 1987, p. 19).

The concept of audiovisual materials used solely as aids to supplement instruction was being supplanted by the idea that materials could be used as a means of "providing the necessary know-how for designing new, or renewing current, worthwhile learning experiences" (Davies, 1978, p. 13). This was the beginning of a shift towards a new view of instructional technology, the systems approach.

Instructional Development

The systems approach, as it applies to teaching and learning, draws on concepts from general systems theory, information science, learning theories, and communication theory, as well as other fields. It originated in training programs developed by the military. Romiszowski (1981) states "The systems approach was born in the field of systems engineering and was first applied rigorously to the design of electronic, mechanical, military, and space systems" (p. 18).

Systems engineering, according to Saettler (1968), is "the invention, design, and integration of an entire assembly of equipment geared to the accomplishment of a broad objective (p. 269).

In education, the systems approach is an empirical approach to the design and improvement of instruction. As Saettler (1968) notes, a systems approach to instruction implies "a scientific study of the kind of instruction required by each learner, the time when it is needed and the appropriate design, organization and operation of a system which can achieve behavioural goals" (p. 271).

Banathy (1968) describes the systems approach for designing instruction as:

a self-correcting, logical process for the planning, development and implementation of instruction. It provides a procedural framework

within which the purpose of the system is first specified and then analyzed in order to find the best way to achieve it. On the basis of this analysis, the components that are most suitable to the successful performance of the system can be selected ... Finally, continuous evaluation of the system ... provides a basis for planned change in improving economy and performance. (pp. 15-16)

There were many factors involved in the development of the systems approach. Its method of problem solving was first developed by the military in World War II when a method was sought to effectively and efficiently train soldiers for specific tasks and to solve various problems. Reiser (1987) notes the military based their work on "instructional principles derived from research and theory of instruction, learning and human behavior" (p. 22). Although the general public was aware of the effects of the systems approach to instruction, it was not until the 1950s with the introduction of programmed instruction, that it would be used and developed in education. Heinich (1970) indicates:

Programmed instruction has been credited by some with introducing the systems approach to education. By analyzing and breaking down content into specific behavioral objectives, devising the necessary steps to achieve the objectives, setting up procedures to try out and revise the steps, and by validating the program against attainment of the objectives, programmed instruction succeeded in creating a small but effective self-instructional system - a technology of instruction. (p. 123)

Task analysis procedures of the 1950s also influenced the development of the systems approach. Task analysis is "the process of identifying the tasks and subtasks that must be successfully performed in order to execute properly some function or job" (Reiser, 1987, p. 22).

In the 1960s, Gagné expanded on the idea of task analysis. He indicated:

the tasks and subtasks identified through the tasks analysis process often will have an hierarchical relationship to each other, so that in order to learn readily to perform a superordinate task, one must first have to master the tasks subordinate to it. (cited in Reiser, 1987, p. 23)

Reiser (1987) notes that the methodologies associated with task analysis and with programmed instruction "emphasized the identification and specification of observable behaviors to be performed by the learner. Thus the behavioral objective movement also attributed to the development of task analysis and programmed instruction" (p. 23) and the systems approach.

Behavioural objectives refer to a "statement of what students will be able to do or how they will be expected to behave after completing a prescribed unit or course of instruction" (Briggs, 1977, p. 55). The behavioural objectives movement began in the early 1900s with the

works of Bobbit, Charters, Burk and Tyler. Tyler, sometimes considered "the father of the behavioral objectives movement" (Reiser, 1987, p. 23), directed a study of curriculum in Ohio. Tyler's Eight-Year study demonstrated that "objectives could be clarified by stating them in behavioral terms, and those objectives could serve as the basis for evaluating the effectiveness of instruction" (Reiser, 1987, p. 23).

Reiser (1987) notes that Benjamin Bloom and his colleagues published the Taxonomy of Educational Objectives (1956) which indicated that within the cognitive domain "there were various types of learning outcomes, that objectives could be classified according to the type of learner behavior therein, and that there was a hierarchical relationship among the various types of outcomes" (pp. 23-24).

Another influence on the systems approach was criterion-referenced testing, first used by Glaser (1963) as 'criterion-referenced measures' which he indicated could be used to "assess student entry-level behavior and to determine the extent to which students had acquired the behaviors an instructional program was designed to teach" (Reiser, 1987, p. 24).

Evaluation of instructional products is an important aspect of the systems approach, and two types of evaluation were incorporated in instructional development; formative evaluation and summative evaluation. According to Reiser (1987), "Formative evaluation is used to improve an instructional product while it is still in the development stage. Summative evaluation is used to assess the effectiveness of the final version of the product" (p. 26).

During the late 1960s and the 1970s much attention was given to the systems approach concept, which was adopted by private industry and the military. Increased interest in this approach led to the establishment of instructional development models for the design of instruction.

Models of Instructional Development

Instructional development models describe "A systematic procedure for solving instructional problems" (Knirk & Gustafson, 1986, p. 19). These models are used by instructional development practioners "primarily as

- (1) communication devices with clients and each other,
- (2) planning guides for management activities, or

(3) prescriptive algorithms for decision making"
(Gustafson, 1981, p. 4).

According to Gustafson (1981) John Barson, in 1967, produced an instructional development model in a project called Instructional Systems Development: A Demonstration and Evaluation Project conducted at Michigan State University from 1961-1965. "The Barson model is notable in that it is one of the few models ever subjected to rigorous evaluation.... [and it] also produced a set of heuristics for instructional developers" (p. 5).

Since Barson's model many other models have appeared in the literature. Gustafson (1981) states "they are simply re-statements of earlier models by other authors using somewhat different terminology" (p. 47). Each is designed for use in a specific setting for selected types of instructional problems. Gustafson (1981) presents a taxonomy of various instructional development models which he categories into four groups; classroom focus; product focus; systems focus; and organization focus (p. 13).

Classroom focus. The emphasis in these models is usually on selection and adaption of existing materials. This focus is of prime interest to teachers who "accept as a given that their role is to teach and that students

require some form of instruction" (Gustafson, 1981, p. 10). Gustafson lists models representing this focus by Gerlach and Ely, Kemp, Davis et al., Briggs, and DeCecco.

Product focus. The goal of these models is "production of one or more specific products ... to prepare an effective and efficient product as quickly as possible" (Gustafson, 1981, p. 7). Two models represent this type - Banathy and Baker and Schultz.

Systems focus. These have as their goal the development of instructional output which itself is considered to be a system. Though different from a product focus it is considered a subset of the former. These models are characterized by four features: "large scale team development, linear development, wide distribution of results of the development, and a problem solving orientation" (Gustafson, 1981, p. 29). Systems focus models reviewed by Gustafson are: Instructional Development Institute (IDI), Interservices Procedures for Instructional Systems Development (IPISD), and Courseware Development Process (CDP).

Organization focus. The goal of these models is not only to improve instruction but "to modify or adapt the organization and its environment" (Gustafson, 1981, p. 7). Two models, by Blondin and by Blake and Mouton, represent this focus.

Instructional Development: Two Archetypes

Davies (1978) conceptualized instructional development from a different perspective. Rather than focus on the various models, trying to differentiate between discrete elements, he considers instructional development as consisting of two different overall approaches or archetypes (1) the engineering archetype; and (2) the problem-solving archetype. In the engineering archetype the underlying paradigm is reflected in instructional development models, exemplified by boxes and arrows with feedback loops, indicating a step-by-step approach to instructional development (Davies, 1978, p. 22). This has also been referred to by Brown & Kennedy (1988) as "functional instructional development" (p. 1).

Davies (1978) describes the problem-solving archetype in terms of a chess game. "Players engage in an intellectual activity for which there is no set of appropriate moves. Intense concentration, ability to foresee future consequences of current actions, flexibility and acquired skills and learning experience are all essential prerequisites for success" (p. 22). In this approach, everything depends on the situation and the skills available. He states "There is no one best way, and no one way of proceeding. Neither is there one

optimal solution" (p. 23). Brown & Kennedy (1988) call this "conceptual instructional development" (p. 1).

Functional instructional development, the engineering archetype, focuses on what the instructional developer does. Conceptual instructional development, the problem-solving archetype, focuses on the how and why - the theories of learning and instruction, and their application in the designing of solutions to instructional problems. Brown & Kennedy (1988) state "rather than discrete levels, functional and conceptual instructional development lie along a continuum" (p. 1) where many of the same tasks, such as analyzing the problem, developing objectives, and designing learning activities, may be performed at both levels.

Romiszowski (1981) says most problems can be solved by using either approach.

The motor mechanic ... may be taught an algorithm, a step-by-step procedure for fault-finding. This logical procedure guarantees that he locates a fault in a reasonable time, as compared to random checks. But as his experience grows, he develops heuristic approaches. He forms conceptual models of certain types of car ... made up of sets of principles such as, 'in this car this type of symptom generally means this fault'. (p. 23)

In the case of education, the implication of a systems approach is that instructional development activity should not be done on a piecemeal basis.

Conceptual instructional development is, according to Brown & Kennedy (1988), the "logical application of the notion of systems approach" (p. 3).

Beckwith (1988) notes:

the promise of educational technology lies with the systemic approach [which] enables us to serve as the problem-solvers of the learning process, the dreamers and creators of new and more effective learner systems.... Since operating systematically requires control over all system components, ours is the responsibility for management of learner and learner transformations. (p. 15)

Historical Development of School Libraries

Early Beginnings

The first school library was established in 1578 when Lord Ashton issued an ordinance stating the Shrewsbury School in England should include "a library and gallery ... furnished with all manner of books, mappes, spheres, instruments of astronomy and all things apperteyning to learning" (cited in Beswick, 1977, p. 62).

In the United States the 'modern school library' is said to have started in 1835 when the first state laws permitted a school district to spend money on books (Carroll, 1981, p. 6), the sole purpose being to provide supplementary reading to classroom texts.

Since then educators and national associations have reinforced the importance of a school library and helped it develop into an essential part of the instructional process. In 1867 a centralized library association (American Library Association) was created. In 1892, the School Libraries Division within the New York Department of Public Instruction was formed, and in 1896 the National Education Association created a Library Section.

In 1906, Melvin Dewey, founder of the American Library Association, stressed the purpose of a library was not solely collecting books.

Libraries are rapidly accepting the doctrine for which we have contended for many years. The name "library" has lost its etymologic meaning and means not a collection of books, but the central agency for disseminating information, innocent recreation, or, best of all, inspiration among people. Whenever this can be done better, more quickly or cheaply by a picture than a book, the picture is entitled to a place on the shelves and in the catalog. (cited in Beswick, 1977, p. 63)

In 1913, the idea of the school library as a laboratory for effective learning was conceived by Fargo who saw the school library functioning as "a laboratory and a workshop, [a means of] putting into the hands of the pupils the necessary tools for further achievement" (cited in Davies, 1979, p. 36).

These early developments and aspirations did not have the expected effect as school libraries "were used little and their contribution to the teaching-learning process was minimal" (Gates, 1968, p. 220). Carl Casper Certain, Head of the English Department at Central High School, Birmingham, Alabama, in 1915 wrote.

In our own southern high schools alone, more than a million obsolete, unclassified textbooks are stacked away as so much worthless trash.... High school inspectors state that unfavorable conditions are frequently accepted with indifference. Under crowded conditions, the books are sent to the attic or to the cellar, or they are stacked in heaps beneath the stair or back of doors. In a few instances, no books are allowed in schools, because the principal regards them as a nuisance, serving only to clutter up the building. (cited in Beswick, 1970, p. 169)

School Library Standards

Concern about the condition of school libraries led the National Council of Teachers of English to recommend an investigation, and the National Educational Association (NEA), under the chairmanship of Certain, undertook a study of school libraries. A 1918 report, Standard Library Organization and Equipment for Secondary Schools of Different Sizes, provided the NEA and the American Library Association (ALA) with high school library standards. These standards, commonly referred to

as the Certain Standards, were:

The first attempts at codification of acceptable high school library practice to be ratified by three major American associations. They were recommendations only, lacking teeth, but it is a sign of their timeliness and quality that they remained the basis of state and regional standards and accreditation minima for more than twenty years. They may very justifiably be called a landmark in the history of school librarianship. (Beswick, 1970, p. 163)

Davies (1979) notes The Certain Standards "not only provided comprehensive and quantitative requisite standards for the high school library organization but set forth the professional qualifications and status of the school librarian ..." (p. 37).

As interest in audiovisual instruction increased after World War II, the library was seen as the logical place to store audiovisual materials. According to Davies (1979), Hall described a new library providing both print and non-print materials in 1925:

In the new high school library many of our schools have found it well worth while to bring together all lantern slides, pictures, victrola records and post cards, and to organize them according to modern methods of classification and cataloging so that they may be available for all departments and at all times as they are not available when kept in departmental collections. (p. 36)

The introduction of audiovisual materials into the library brought a shift in school library function from

that of a study hall to what Craver (1986) describes "as an instructional media center", and its associated "changing role for the school librarian" (p. 185).

Other attempts to refine the educational purpose of school libraries occurred with the development of four additional sets of standards in the thirty year period from 1945 to 1975, each more concisely stating the function of the school library and each responding to the changing needs of society and the changing views of education.

An American Library Association (ALA) Committee on post war planning, in 1945, replaced the Certain Standards with School Libraries for Today and Tomorrow. This document attempted to establish the school library as an "essential element in the school program; the basic purpose of the school library is identical with the basic purpose of the school itself" (p. 9).

The document implied a cooperative relationship between the school librarian and classroom teachers.

"Unless they plan together the use of materials already available and the selection of materials to be added, the library cannot function effectively in the educational program" (American Library Association, 1945, p. 11). The importance of the inclusion of audiovisual materials in

the school was also recognized. The document stated: "In order to serve as an instructional agency ... the library must have a wealth of materials of all kinds - books, pamphlets, recordings, prints, and other audiovisual aids - organized with the educational needs of the particular school in mind" (American Library Association, 1945, p. 11).

In 1956 the American Association of School Librarians (AASL) published an official statement School Libraries as Instructional Materials Centers to show the importance of instructional materials, and to define the function of the school library and the role of the school librarian:

In addition to doing its vital work of individual reading guidance and development of the school curriculum, [the school library] should serve the school as a center for instructional materials.... The function of an instructional materials center is to locate, gather, provide and coordinate a school's materials for learning and the equipment required for the use of these materials.... trained school librarians must be ready to cooperate with others and themselves serve as coordinators, consultants, and supervisors of instructional materials service on each level of school administration. (cited in Gates, 1968, p. 235)

In the 1960s changes in education continued to impact on the instructional role of the school librarian. Craver (1986), says "The school's new emphasis on

"diversified learning materials - both print and non-print - for all subjects and all levels of ability" finally brought to school librarians the opportunity for the greater instructional role." (p. 185).

The American Association of School Librarians (1960) published another document, Standards for School Library Programs. In the document the school library's primary objective is depicted as that of "contributing to the achievement of the objectives formulated by the school, of which it is an integral part" (p. 8). The need for the school library to include all grade levels and serve the school as a center for instructional materials is stressed.

Services, not words, portray the image of the school library. The school library is a materials center, an instructional materials center, an instructional resource center.... In like manner, the school librarian is a materials specialist or an instructional resource consultant. (p. 13)

Grazier (1979) notes the 1960 standards equate the librarian with a curriculum consultant.

The 1960 document elaborated the activities in which the librarian participated - with students, teachers and administrators - as part of the instructional program of the school.... To carry out these services, the library staff member should serve on all school committees for curriculum development, textbook selection and policy-making. (p. 264)

She states the 1945 and 1960 standards stressed two common purposes of the school library:

1. to cooperate with teachers in selecting and using library materials which would contribute to the teaching program;
2. to participate with teachers and administrators in programs for continuing professional and cultural growth of the school staff. (p. 264)

While these standards defined a new role for librarians, Craver (1986) notes the library "still remained one of advising, supplying and guiding students and faculty" (p. 184) and did not reach its full potential.

In 1963, The Department of Audiovisual Instruction (DAVI) of the National Educational Association described the role of the media professional in education as changing from a "keeper and dispenser of teaching aids" to an "analyst and designer of instructional systems who must be centrally involved in the planning of learning environments and in providing for related support functions and evaluative procedures" (Norberg, Meierhenry, Ely, Kemp, & Hyre, 1967, p. 1027). By the late 1960s "the school began to focus on learning rather than on teaching, and on curriculum methods that permitted a broader instructional role for the school librarian" (Craver, 1986, p. 183).

The American Association of School Librarians and DAVI (1969) issued new standards entitled Standards for School Media Programs. These standards described a more unified media concept with reference made to media specialists whose instructional role involved:

1. Acting as resource persons in the classroom when requested by teachers;
2. Serving on teaching teams;
3. Working with teachers to design instructional experiences;
4. Working with teachers in curriculum planning;
5. Assuming responsibility for providing instruction in the use of the media center; and
6. Assisting teachers ... to produce materials which supplement those available through other channels. (p. 8)

Grazier (1979) states these changes "reflected DAVI's growing concern with instructional development" (p. 264). The 1969 standards recognized "new emphasis on individualization, inquiry and independent learning, and described the media center and its staff as supporting, complementing and expanding the work of the classroom" (Grazier, 1979, p. 264).

Craver (1986) notes "the instructional changes mirrored in the 1969 standards and in the literature of the sixties were unfortunately not reflected in the

actual practise of school librarianship" (p. 187). Research studies conducted during this time indicated "that a disparity existed between the perceived instructional role of the librarian and the actual role ... [and] the perceptions of media specialists were quite different from those held by teachers and administrators" (Craver, 1986, p. 188).

In response to the problem the American Association of School Librarians and the Association for Educational Communications and Technology (1975) published a joint set of standards entitled Media Programs: District and School. These standards "delineate guidelines and resources essential for quality education" (p. 1). They describe the school library media center as an integral part of the instructional program:

The media program exists to support and further the purposes formulated by the school or district of which it is an integral part, and its quality is judged by its effectiveness in achieving program purposes. A media program represents a combination of resources that includes people, materials, machines, facilities and environments, as well as purposes and processes. (p. 4)

The 1975 standards elevate the instructional role of the media specialist, which they define as one who "holds a master's degree in media from a program that combines library and information science, educational

communications and technology, and curriculum" (American Association of School Librarians & Association for Educational Communications and Technology, 1975, p. 22). Craver (1986) outlines two functions essential to the instructional role as (1) design, which advises media specialists to "initiate and participate in curriculum development" and (2) consultation, which encourages media specialists to "recommend media applications to accomplish specific instructional purposes" (p. 189).

Craver (1986) notes that "by the end of the seventies, the school media specialist's instructional role had evolved in the literature to one of prominence" (p. 189). The literature throughout the 1980s further defined the instructional design role of school library media specialists. "There is evidence that more systematic approaches were being followed for instruction and that library media specialists were being urged to consider their educational role within the framework of the total program" (Craver, 1986, p. 190).

The instructional role of the school library media specialist had evolved from a study hall monitor to an instructional designer.

Canadian School Library Standards

Canada used existing American standards until 1962, when the newly formed Canadian School Library Association (CSLA) recognized a need for Canadian standards because there were "significant differences between educational goals and practices in Canada and the United States" (Branscombe, 1986, p. 19). In 1967 the document Standards of Library Service for Canadian Schools provided "the first Canadian Standards for the provision of learning materials in schools" (Branscombe, 1986, p. 19). These standards reflected American school library movement trends. "The concept was the same; that of a school library as an integral part of the school, providing a multi-media approach to learning" (Brown, 1985, p. 41). The function of a library was described as:

an essential part of the school, composed of quarters, library materials, personnel, with a programme developed to serve the students, teachers and administration.... [the use of library materials as] all materials which might be used to instruct, inspire as well as encourage and facilitate the learning programme. (Canadian School Library Association, 1967, p. 3)

The role of the teacher-librarian is described as "an instructional materials resource person, [who] works with students, instructional staff, administration, parents and community agencies to produce a library

programme" (Canadian School Library Association, 1967, p. 3).

In 1969 the Educational Media Association of Canada (EMAC) published Media Canada: Guidelines for Educators. In its preface the document states "This work represents a first attempt to set down national guidelines and specifications for Canada in the very complex field of educational media" (unpaged). The document emphasizes the importance of non-print materials which the Canadian Audiovisual Association felt the 1967 standards failed to address. However, Brown (1985) notes that the program outlined by these standards "was not integrated with the school library. Instead, personnel and space was to be provided for an educational media centre, a separate facility from the library resource centre" (p. 42).

In 1977, the Canadian School Library Association and the Association for Media and Technology in Education in Canada (AMTEC), authorized the first joint Canadian standards entitled Resource Services for Canadian Schools. The document achieved what the first two did not. It combined all types of learning materials and emphasized the need for "the total integration of learning resource services with all aspects of curriculum and instructional development in the school" (Branscombe

and Newsom, 1977, p. 4). It emphasized the need for teachers and learning resource teachers to work together because of the "incredible growth of information and technology ... [and] growth in understanding of the learning process" (Branscombe and Newsom, 1977, p. 1).

In the latter half of the twentieth century changes in educational philosophies, increasing understanding of the learning process, and active participation in the process by learners, have made teaching too complex for one teacher:

Few people now believe that learning is something that students acquire passively. Good teaching is recognized as the successful matching of individual learners of varied abilities with experiences mostly likely to effect in them desired changes in thinking and behaviour. Learning has replaced teaching as the centre of instructional planning. Planning and directing learning experiences are now central to the teaching role. It follows ... that the way to influence the type and extent of learning is to vary the nature of learning experience. (Branscombe & Newsom, 1977, p. 1)

Previous American and Canadian standards recognized the importance of print and non-print resources in meeting the curriculum requirements, but to ensure utilization of these resources in a manner that is most beneficial a new approach to teaching and learning has been proposed. Resource-based teaching and learning requires teacher-librarians and classroom teachers to

work together. In the literature of school librarianship this is referred to as cooperative program planning. Branscombe and Newsom (1977) state "the job of teaching today is necessarily a co-operative one. Classroom teachers and learning resource teachers working together planning and directing students in the use ... of a wide range of resources" (p. 33).

Resource-Based Teaching and Learning

Introduction

L.C. Taylor (1971) introduced the term 'resource-based system learning' in Resources for Learning. Analyzing how children learn, he describes two methods of learning - teaching-based and resource-based. He suggests they should be viewed as the extremes of a continuum. The teaching-based approach is "arranged to permit children to catch the perishable words that fall from a teacher's lips - books and other materials having an intermittent, ancillary role" (p. 173). In the resource-based approach "Children learn chiefly from materials, or from one another, directly or independently - the interpretation of the teacher having an intermittent if vital role" (p. 174).

Resource-based learning, according to Beswick (1977), "covers a wide spectrum of possibilities and modes, according to temperament and professional decision of the teacher and the circumstances of the subject matter, class and school" (p. ix). Brown (1988) says the resource-based system "requires that teachers and schools provide a variety of learning experiences which will appeal to different learning styles" (p. 4).

Canadian curriculum developers are aware of the vast amounts of information produced yearly and are concerned about how to prepare students to function effectively in an information and technologically rich world. Educators have realized the traditional teacher-based approach is no longer adequate and are now emphasizing the resource-based approach to teaching and learning.

Resource-Based Approaches in Canada

The Ontario Ministry of Education (1982) published a curriculum guideline, Partners in Action: The Library Resource Centre in The School Curriculum, which defined resource-based learning as follows:

Resource-based learning refers to planned educational programs that actively involve students in the meaningful use of a wide range of appropriate print, non-print, and human resources. Such programs are designed to provide students with alternative learning activities: the selection of the activities and

learning resources, the location of the activities, and the expectations for a particular student depend on the objectives established for the student. (p. 6)

Three other Canadian provinces adapted the Ontario model and have incorporated resource-based teaching and learning into their educational goals and objectives. Alberta Education (1985) published Focus on Learning: An Integrated Program Model for Alberta School Libraries. It proposed an 'integrated school library program', in which the school library is not peripheral or supplementary to the school instruction program, but an essential part of it, providing for "systematic instruction and practice in locating, processing and sharing information in all formats" (p. 7).

British Columbia Teacher-Librarians' Association (1986) published Fuel for Change: Cooperative Program Planning and Teaching. It recognizes the increasing amount of information bombarding society and suggests that if students are to deal with vast amounts of information they must "be taught how to select, process and utilize information" (p. 2). As teaching styles must continue to change to prepare students to cope with the future, "Curricula must be developed which focus on skills that aid the student in becoming more self-directing and more fully functioning" (p. 2).

The Saskatchewan Teachers' Federation (1986) published The 4th R: Resource Based Learning. This document promotes the concept of resource-based education and sees it as important in achieving the goal statements of Saskatchewan education. Its goals are to encourage schools "to develop a body of knowledge and a range of skills and attitudes necessary to function in a changing world.... [and to] produce students who are willing to pursue life-long learning" (p. 1).

Resource-Based Approaches in Newfoundland

In Newfoundland the Department of Education recommends a resource-based method of instruction which it promotes in curriculum guides, course descriptions, required texts, and teachers' guides. Teachers are required to formulate objectives based on the curriculum and the individual learning needs and styles of students:

To expect children to be the same or to make equal progress is unreasonable. Progress should be viewed in individual gains over time.... The individual differences of children will be taken into account by the use of different instructional techniques and strategies to accomplish the aims, and by recognizing and accepting that children will achieve the aims to differing degrees. (Newfoundland Department of Education, 1988, pp. 6-7)

Provincial curriculum planners recommend integration across the curriculum when possible, as they realize

similar concepts, skills, and values are found in each subject area. They also recommend the use of themes to organize instructional content, motivate students, and provide opportunities for interdisciplinary approaches.

Teachers are expected to use prescribed textbooks and other resources to provide a variety of learning experiences for the mastery of the objectives. The Design for Social Studies K-VI in Newfoundland and Labrador emphasizes a variety of learning experiences:

Concrete and sensory experiences are necessary and valuable in concept attainment; however, to give meaning and depth to concepts, instruction must offer vicarious experiences (books, films, maps, discussion, etc) to take children far beyond the objects and events they experience directly. (Newfoundland Department of Education, 1981, p. 23)

The language arts program, Networks, for Grades Four to Six recognizes the need for a varied collection of library materials to support an integrated thematic approach. The material is organized "within a thematic framework that allows children to bring much of their real world knowledge to reading and writing, and to extend themselves through a rich variety of integrated experiences" (McInnes, 1985, p. 12).

The High School Biology Curriculum Guide urges teachers to move towards a resource-based approach:

The teacher should not be tied to the student text. He should use as many audio-visual aides

as possible. There are available on most topics a variety of films, many texts and books on specific topics. Consistent, overt references to these aides by teachers will encourage students to expand their reading beyond their text and thereby broaden their scope of learning and deepen their understanding of the discipline. (Newfoundland Department of Education, 1979, p. 7)

For resource-based teaching and learning, as recommended by the Canadian standards, the four provincial models, and the Newfoundland Department of Education curriculum documents, to be successful more is required than a variety of resources. Cooperation between all participants in the educational process is necessary, especially between the teacher-librarian and the classroom teacher.

A teacher cannot plan for resource-based work without an understanding of his colleagues acting in the media production and media library modules; equally, neither of them can proceed meaningfully without an understanding of the teacher's purposes and practices and those of each other. (Beswick, 1977, p. 242)

Cooperative Program Planning and Teaching

Introduction

Cooperative program planning, introduced by Kenneth Haycock in 1978, focuses on learning and provides "A philosophical framework for the development and implementation of resource-based programs which reflect what we know about how students learn" (Haycock, 1988, p. 29). Soon (1985) states, "In cooperative program planning and teaching the focus is on the learner. In contrast to isolated skill lessons where the main focus is on content, there is a concentration on the process of learning" (p. 162).

In concentrating on the process of learning (learning how to learn rather than on what to learn) an emphasis is placed on procedures in which the teacher and teacher-librarian cooperate to design, implement and evaluate instruction. "The teacher-librarian and the teacher jointly plan the responsibilities for the preparation and teaching of each component, keeping in mind the strengths of each partner" (Soon, 1985, p. 162). Using this approach both teachers bring their own knowledge and expertise to the preparations of instruction and the teacher-librarian is viewed as an

equal teaching partner.

The teacher-librarian joins with the classroom teacher to form a horizontal team of two equals working towards the established objectives. This dyad cooperatively plans what is to be done and the most effective way to accomplish the task. The classroom teacher and the teacher-librarian each bring different backgrounds and strengths in teaching, but they do understand the potential of various approaches to learning and recognize common goals. (Haycock, 1981, p. 5)

Canadian Models

This view of the cooperation between classroom teacher and teacher-librarian is stressed in all the Canadian models as being essential for good education. The Ontario Ministry of Education (1982) in the document Partners in Action: The Library Resource Center in the School Curriculum states "the success of the library resource centre depends to a large extent on the degree of co-operation among all participants in the educational enterprise" (p. 4).

The document attempts to illustrate how these partnerships can lead to the creation of resource-based programs.

Resource-based programs cannot be successful unless students master the learning and research skills necessary to use materials effectively. A cooperatively developed, sequential program for teaching these skills can ensure that students learn the skills in the context of meaningful curriculum-related

activities. This suggests the need for a teacher-librarian ... to work with teachers as a partner in the total curriculum process. (Ontario Ministry of Education, 1982, p. 9)

Focus on Learning: An Integrated Program Model for Alberta School Libraries (Alberta Education, 1985), like the Ontario document, stresses the need of cooperative planning to provide purposeful learning for all students:

teachers, teacher-librarians and all school staff members work together as educational partners. They plan, implement and evaluate learning activities. In this cooperative planning and implementation process, particular attention is given to the individual learning styles and needs of the students. (p. 2).

It stresses three major components, instruction, development, and management. The document reads:

At the heart of the model, and common to each component, lies the concept of **cooperative planning and implementation**.... Cooperation in planning and implementation provides the nucleus of commitment and creative energy that cohesively binds the components of **instruction, development and management**. (Alberta Education, 1985, p. 6)

Fuel for Change: Cooperative Program Planning and Teaching notes that the school administrator, the classroom teacher and the teacher-librarian have specific roles to play in a successful resource centre program and that these roles are best performed in partnership, "As a team they will most effectively ensure that there is

excellence in the process and the outcome" (British Columbia Teacher-Librarians' Association, 1986, p. 18).

The 4th R: Resource-Based Learning describes the teacher-librarian as a teacher "who shares responsibility for teaching, planning and evaluating, and for the development of programs that focus on the effective use of resources" (Saskatchewan Teachers' Association, 1986, p. 8). This is to be achieved by a close cooperation between teacher-librarians and classroom teachers at all stages "from planning, through implementation, to evaluation" (Saskatchewan Teachers' Association, 1986, p. 8). The goals of providing students with valuable learning experience by involving them in a wide range of resources are recognized in this document.

Role of the Teacher-Librarian

Cooperative program planning and teaching is the implementation of resource-based teaching and learning as recommended by the standards and provincial models for school librarianship. In order to bring this concept to full realization it is necessary to analyze the role of the teacher-librarian and the knowledge and skill base required to fulfill this role.

The need today is for the learning resource teacher to be a highly skilled teacher, able to function on the school team as a professional

with competencies from teacher education and classroom experience as well as competencies from school librarianship and media services. (Canadian School Library Association Report, 1980, p. 3)

Haycock (1981) notes that, in light of the recent trends and priorities in education, all school teaching positions are being redefined, particularly the position of teacher-librarian. "The school librarian is, or should be, an outstanding or master teacher with specialized advanced education in the selection, organization, management and use of learning resources, and the school library, a resource centre inseparable from the instructional program" (p. 4).

This shifts the emphasis of the role of the teacher-librarian from cataloguing, classification, selection and storytelling to working with classroom teachers in instructional design. To fulfill this role Brown (1988) states, "qualified learning resource teachers will have advanced training in instructional development as well as being experienced teachers" (p. 11).

These instructional development implications for the teacher-librarian were noted by David Loertscher (1988), "In the last ten years, a new concept, instructional development or resource-based teaching has emerged from the fields of educational psychology and instructional

technology" (p. 2). In an earlier article written in 1982 he defines instructional development as "a systematic process of creating sound instructional modules or units for learners by a team of professionals that include a teacher and a person knowledgeable in educational technology" (Loertscher, 1982, p. 417).

In the Canadian models and standards there is an emphasis: on the importance of educational technology competencies, and all agree a knowledge of educational technology is essential in the preparation of teacher-librarians. Partners in Action states; "The teacher-librarian is involved in the identification of teaching and learning strategies; working with teachers and students in the selection, production and evaluation of learning resources and serving as a consultant in planning effective learning activities" (Ontario Ministry of Education, 1982, p. 36).

Fuel for Change, quotes Lucy Ainsley,

School library media specialists are first and foremost educators. We choose a specialized field within education and are teachers ... Thus, we must know a good deal about learning styles, instructional design, and sound teaching strategies as well as management of people and resources. (British Columbia Teacher-Librarians' Association, 1986, p. 4)

The Educational Media Group (1986) developed a Statement of Concern, which recommends standards for

resource centres in Newfoundland. It describes the qualifications for teacher-librarians:

A teacher-librarian must be a highly-skilled teacher who has specific training in the organization and operation of effective library programs.... This person must be adequately trained to oversee the day to day operations of a library, select appropriate resources, co-ordinate ordering and borrowing materials, manage equipment, provide resources for teachers and students from within and outside the school facility, co-operatively plan with teachers to implement resource-based programs. (p. 15)

Grazier (1976) sees the media specialist role in instructional development defined by three factors:

1. The point of entry and exit of the media specialist in the process,
2. The perception of the role of the media specialist by the teacher, the administrator, and the media specialist, and
3. The competencies of the media specialist. (p. 199)

In describing the entry and exit points of the media specialist she uses the classical development sequence of curriculum proposed by Taba (1945) and Tyler (1950):

- (1) diagnosis of needs
- (2) formulation of objectives
- (3) selection of content
- (4) organization of content
- (5) selection of learning experiences
- (6) organization of learning experiences, and
- (7) determination of what to evaluate. (p. 199)

She suggests combining the first six steps as curriculum planning, and curriculum implementation as the activation of these steps: curriculum evaluation she considers as Step Seven. Entering and exiting at the implementation stage, the media specialist is performing the traditional role, that is dispenser of print and non-print material responding to specific requests. However, if the media specialist enters at the planning stage of the curriculum development process and exits at the end of the evaluation stage, the media specialist "adds a valuable resource to the team" (p. 200), and functions as an instructional developer.

Loertscher (1982) developed a taxonomy of school librarianship for the 1980s which combines the best aspects of traditional library service and the new concept of instructional development. It delineates eleven levels of teacher-librarian involvement in instruction, three of which pertain to instructional development. Levels nine and ten place the teacher-librarian at the curriculum determination stage, "formal planning for the unit begins far in advance and will require a number of preparatory planning sessions, planning while the unit is underway, and a formal evaluation at the end" (p. 420). Level eleven places the

teacher-librarian at the curriculum development stage:

Curriculum development ... means that the library media specialist is recognized as a colleague and contributes meaningfully to planning. The knowledge of materials, sources, media, ... and teaching/learning strategies makes the library media specialist a valuable asset as curricular changes are considered and implemented. (Loertscher, 1982, p. 421)

Loertscher's taxonomy and cooperative program planning and teaching have similar objectives, that is, the cooperative planning, development, and evaluation of instruction, taking into consideration individual student needs. Instructional development, by Loertscher's definition, is the process utilized in effective instructional design.

In 1980, Canadian School Library Association Report identified nine competencies for teacher-librarians. Two, quoted in Fuel for Change (British Columbia Teacher-Librarians' Association, 1986) are relevant to the library resource centre program and are based on cooperative program planning and teaching. They are:

- (a) Competency 8: Cooperative Program Planning and Teaching. The teacher-librarian participates as a teaching partner with the classroom teacher in the instructional process using their knowledge of resources and teaching strategies.
- (b) Competency 9: Professionalism and Leadership. The teacher-librarian by taking an active part in the planning strategies for the resource center and serving on educational committees promotes and

cooperatively develops effective use of learning resources and the learning resource center.

Partners in Action (Ontario Ministry of Education, 1982) describes six major responsibilities of the teacher-librarian, each implying the use of instructional development:

Instructional Responsibilities. The teacher-librarian, working cooperatively with the classroom teacher, matches learning resources to individual student needs and styles and provides assistance to students in the effective use of learning resources.

Curriculum Development Responsibilities. The teacher-librarian participates as a teaching partner at all stages of the instructional process and must be knowledgeable in instructional approaches and in instructional design.

Consultative Role. The teacher-librarian, possessing communication skills and knowledge of the instructional process, serves as a consultant to classroom teachers in the planning of effective learning activities.

Selection of Learning Resources. The teacher-librarian previews, evaluates, and selects cooperatively with the classroom teacher resources to meet student needs.

Management Function. The teacher-librarian assesses the needs and priorities of the learning resource center in consultation with staff members and students. Included in this function is the administration of the learning resource center.

Program Advocacy. The teacher-librarian promotes awareness of the learning resource center to principal, teachers, supervisory officers, parents, trustees and students.

Summary

The world that today's students face is vastly different from the world of students a generation ago. Alberta Education (1985) in its document Focus on Learning asks the question that is being asked across the country: What are the implications of our technological society for education in general, for the schools in particular, and, more importantly for the student?

The most obvious implication is that students will need to know how to access information. They must learn how to select, evaluate, and use information. This means that textbooks maybe an important resource but only one of many resources for the learner in the future.

Across the curriculum at all levels teachers are being asked to involve students in the learning process through the use of varied and rich resources. Resources of all kinds are needed if teachers are to implement programs that have been authorized by provincial departments of education. For classroom teachers to implement such programs they will also need a strong support system. Central to that support system is the qualified teacher-librarian.

Modern instruction becomes a resource-based approach through cooperative program planning and teaching using the knowledge of both the classroom teacher and the teacher-librarian. The literature provides evidence that if this is to be done effectively and efficiently the teacher-librarian must have knowledge of and competency in instructional development.

The Association for Educational Communications and Technology Task Force Report on ID certification (1982) entitled Task Force Report On Instructional Development Competencies provides a list of core competencies that are performance-oriented for the instructional/training development professional. Using semantic content analysis, in accordance with guidelines developed by Krippendorff (1980), competencies from fields of instructional development and school librarianship were synthesized. The incorporated competency areas from both fields are as follows:

AECT COMPETENCIES1. Conduct Needs
AssessmentCANADIAN DOCUMENTS

The integration of the library resource center with resource-based programs begins with the assessment of needs and the setting of priorities. (Ontario Ministry of Education, 1982, p. 37)

Develop, in cooperation with the principal and the teaching staff, such library policies and procedures which meet the needs of the staff and the students, and which meet the educational objectives of the school. (Saskatchewan Teachers' Federation, 1987, p. 9)

2. Conduct Learner
Analysis

In using learning resources the teacher-librarian matches resources to student needs and styles and provides reading, viewing, and listening guidance for individuals, small groups, or classes of students. (Ontario Ministry of Education, 1982, p. 34)

The teacher-librarian may be involved in understanding students' strengths and weaknesses and advising students on appropriate learning resources. (Ontario Ministry of Education, 1982, p. 36)

3. Develop and
Sequence
Behavioural
Objectives

Together, the classroom teacher and the teacher librarian set learning objectives for a unit. (Saskatchewan Teachers' Federation, 1987, p. 7)

The teacher-librarian is responsible for adapting and developing learning resources to

meet specific program objectives and learner needs. (Ontario Ministry of Education, 1982, p. 36)

4. Conduct
Environmental
Analysis

The teacher-librarian may be involved in arranging facilities and equipment to accommodate student needs. (Ontario Ministry of Education, 1982, p. 36)

5. Determine and
Sequence Content

The teacher-librarian is able to develop cooperatively with teachers a sequential list of media, research and study skills for cross-grade and cross-subject implementation. (Canadian School Library Association Report, 1980, p. 6)

The teacher-librarian is able to pre-plan with teachers and teach skills integrated with classroom instruction to large and small groups and individuals. (Canadian School Library Association Report, 1980, p. 6)

6. Determine and
Sequence Learner
Activities

Design learning experiences for students that ensure integration of resource materials. (Ontario Ministry of Education, 1982, p. 23)

The teacher-librarian is able to integrate the planned use of learning resources with the educational program. (Canadian School Library Association Report, 1980, p. 6)

7. Determine
Appropriate
Resources

It is the responsibility of the teacher-librarian to advise on appropriate resources for teaching programs. (Saskatchewan Teachers' Federation, 1986, p. 9)

The teacher-librarian is able to recommend ... learning resources in various formats which may assist in the accomplishment of specific learning objectives. (Canadian School Library Association Report, 1980, p. 5).

8. Determine
Appropriate
Teaching
Strategies

The teacher-librarian is able to share techniques and strategies for using learning resources. (Canadian School Library Association Report, 1980, p. 6)

It is the responsibility of the teacher-librarian to suggest and advise on teaching/learning strategies that encourage resource-based learning. (Saskatchewan Teachers' Federation, 1986, p. 9)

9. Evaluate and
Revise
Instructional
Content

The teacher-librarian is able to develop and implement criteria for the evaluation and selection of a wide range of resources. (Canadian School Library Association Report, 1980, p. 5)

It is the classroom teacher's responsibility to evaluate, with the teacher-librarian, any library oriented assignments or cooperative study units with regard to materials utilized, learning outcomes and the effectiveness of the process. (Saskatchewan Teachers' Federation, 1986, p. 7)

10. Create
Instructional
Units

The teacher-librarian may be involved in producing or arranging for the production of learning materials. (Ontario Ministry of Education, 1982, p. 34)

The teacher-librarian is able to plan and develop units of work with teachers from the setting of objectives to evaluation.
(Canadian School Library Association Report, 1980, p. 6)

It is the responsibility of the teacher-librarian to produce and/or arrange for the production of teaching/learning materials.
(Saskatchewan Teachers' Federation, 1986, p. 8)

11. Conduct
Workshops/
In-Service

The teacher-librarian is able to lead in-service education programs on the effective use of the resource center: criteria for selection of materials; designing resource-based units of study; using audio-visual equipment; promoting voluntary reading; media, research and study skill development; cooperative teaching; community resources.
(Canadian School Library Association Report, 1980, p. 6)

It is the responsibility of the teacher-librarian to provide inservice programs for the teaching staff that facilitate resource-based learning.
(Saskatchewan Teachers' Federation, 1986, p. 8)

12. Communicate
Effectively

In order to develop a working partnership, each participant needs a willingness to communicate openly and

effectively. (Ontario Ministry of Education, 1982, p. 10)

The teacher-librarian is able to communicate effectively with teachers and administrators. (Canadian School Library Association Report, 1980, p. 6)

13. Consult with
Individuals and
Groups

The teacher-librarian is able to participate in the school's educational program by serving on advisory groups and committees and working with the student extra-curricular program. (Canadian School Library Association Report, 1980, p. 7)

Make use of the teacher-librarian's skills as a teacher who can share in the planning and evaluation of learning programs. (Ontario Ministry of Education, 1982, p. 22)

The teacher-librarian is able to develop a working relationship with public libraries, specialized libraries, other resource centers, community organizations, resource people and district resource services. (Canadian School Library Association Report, 1980, p. 6)

As is plainly evident documents describing the role of the teacher-librarian delineate instructional development competencies, despite differences in terminology. It is clear that the application of a cooperative program planning approach to resource-based

teaching and learning requires competencies in instructional development. This study determines if teacher-librarians in the province of Newfoundland have the requisite instructional development competencies to function in the role espoused in the literature.

CHAPTER THREE

METHODOLOGY

Introduction

A field study was executed to elicit comprehensive information regarding teacher-librarians' knowledge of the instructional development process. The field study used an indepth structured interview as the means of data collection.

Dexter (1970) states "Interviewing is the most preferred tactic of data collection when it appears that it will get better data or more data or data at less cost than other tactics" (p. 11). An interview for the type of information required was felt to be the best instrument. "The ability to tap into the experience of others in their own natural language, while utilizing their value and belief frameworks, is virtually impossible without face-to-face and verbal interaction with them" (Guba & Lincoln, 1981, p. 155).

There are many forms an interview may take: team or panel; covert; oral history; structured or unstructured (Guba & Lincoln, 1981, pp. 160-170). Team or panel interviewing have either more than one interviewer interviewing or a number of persons being interviewed at the same time. In team interviewing the interviewers

should be highly skilled and possess good listening and communication skills.

Covert interviewing occurs when the respondents "do not know they are being interviewed or they do not know the purpose of the interview" (Guba & Lincoln, 1981, p. 161). The question of ethics must be considered, because according to Guba and Lincoln (1981), there is "the question of the extent to which the covert researcher may violate the privacy of his subjects" (p. 162).

Oral history interviewing "focuses upon the recollections of those who have been participants in events of interest or perhaps even in major episodes of history" (Guba & Lincoln, 1981, pp. 162-163). This type of interview takes a great deal of time because the interviewer must listen carefully to what the respondent says about the subject. Questions are as open-ended as possible, and are not structured or organized. Morrissey says about this type "let the interviewee talk. It's his show. Let him run with the ball.... I [the interviewer] would sit and listen" (cited in Dexter, 1970, p. 111).

The unstructured interview tends to be free flowing and conversational in that it moves the way the respondent causes it to move. This type of interview

occurs, according to Guba and Lincoln (1981), "most often in situations where the investigator is looking for nonstandardized and/or singular information.... it tends to stress the exception, the deviation, the unusual interpretation, the reinterpretation, the new approach, the expert's view or the singular perspective" (p. 165).

Structured interview, which this study has adopted, is one in which "the investigator is looking for answers within the bounds set by his own presuppositions, hypothesis, and hunches" (Guba & Lincoln, 1981, p. 164). The format of structured interviews can be a series of questions that call for "yes" or "no" responses; various kinds of checklists; a scale or continuum; open-ended responses; or where the questions are all given beforehand, corresponding to the design of the investigator (Guba & Lincoln, 1981, p. 165). The structured interview usually provides good sampling as there is less risk of 'turndowns' by respondents. It is used in situations where identical questions are to be asked about something and where all responses are considered of equal importance.

For the purposes of this field study the structured interview was utilized as it was considered the best form

of all the types of interviews to elicit the required information from participants in the study.

Instrument Development

In developing the instrument one concern was the use of terminology which is standard in the literature on educational technology, but which might not be familiar to teacher-librarians. As a result an initial instrument was developed to gauge the familiarity with the terms (see Appendix B). This initial instrument was piloted with a group of approximately 60 teacher-librarians at a two day annual conference of the Educational Media Council in October 1988. Information gleaned from the pilot study was used to assist in the development of the main instrument.

The structured interview guide consisted of three sections: (1) demographic information; (2) level of instructional development expertise; (3) specific knowledge of various competencies in instructional development. The first section, demographics, sought information on respondents' preparatory training, including years of university training and major areas of study; completion of instructional development courses or courses with instructional development components;

teaching experience; school library experience; and present status as teacher-librarians.

The second section dealt with respondents' knowledge of the term instructional development and their views of two broad approaches to instructional development. Chapter Two describes instructional development as either 'functional' or 'conceptual' (Brown & Kennedy, 1988, p. 31) in accordance with Davies (1978) who refers to the 'engineering archetype' and 'problem solving archetype' of instructional development. This section sought clarification on the approach of teacher-librarians in using instructional development to create instructional units, modules or packages.

The third section dealt with fifteen instructional development competency areas derived from the AECT Task Force Report on ID certification (see page 70). To incorporate competencies from both fields, a semantic content analysis, in accordance with guidelines developed by Krippendorff (1980), was performed on three Canadian documents: Partners in Action, by the Ontario Ministry of Education (1982); The 4th R: Resource-Based Learning, by the Saskatchewan Teachers' Federation (1987); and The Qualifications for School Librarians, by the Canadian School Library Association Report (1980). The competency

areas found applicable to the role of the teacher-librarian include:

- Conduct Needs Assessment
- Conduct Learner Analysis
- Develop and Sequence Behavioral Objectives
- Conduct Environmental Analysis
- Determine and Sequence Content
- Determine and Sequence Learner Activities
- Select Appropriate Resources
- Determine Appropriate Teaching Strategies
- Evaluate Instructional Content
- Revise Instructional Content
- Create Instructional Units
- Conduct Workshops/In-Service
- Consult with Individuals
- Consult with Groups
- Communicate Effectively.

This section of the interview guide was structured by using several questions about each competency area, ranging from a minimum of two to maximum of eight items. Some competency areas were introduced by a simple question which required that respondents answer on a two point scale of YES/NO, the purpose being a direct response regarding teacher-librarian familiarity with that competency. Respondents who responded positively were questioned in more detail about the competency to explore their complete knowledge of the particular area. Respondents who responded negatively proceeded directly to the next competency area. Other competency areas began by eliciting responses concerning the definition of the

term used to describe the competency area; this item was followed by indepth questions regardless of the response provided.

The interview guide consisted of highly structured questions which permitted open-ended responses, with questions to be asked placed on the left of each page, and at the right a checklist of possible correct answers was included where appropriate. Pre-arranged prompts were given to respondents if certain questions were not understood and clarification was needed. If no response was given after the prompt interviewers proceeded to the next question.

Those questions which involved the reading of detailed statements concerning functional and conceptual instructional development approaches, and the role of instructional development in the curriculum development process, were supplemented by a transcript of the definitions and/or statements so that respondents could refer to it as the interviewer posed the questions (see Appendix B).

Sample Group

The selection of respondents consisted of the entire population of teacher-librarians working half-time or

more in the school library throughout Newfoundland and Labrador. The total population of teacher-librarians was selected because of the relatively small number of half-time or more teacher-librarians (128) in the province. Also, because of the open-ended interview technique it was desirable to obtain responses from all representatives of this group.

The criteria that teacher-librarians must be working half-time or more in the library was used, because all of the professional literature supports the notion that teacher-librarians can only implement a resource-based approach if they have time, over and above that required for administrative and clerical tasks. The commonly accepted time allotment is half-time or more.

Procedures of the Study

Superintendents and program coordinators or contact persons for the library at each school board in the province were contacted by a letter that (a) described the purpose of the study; (b) requested their assistance in providing a list of teacher-librarians who worked half-time or more in the library; and (c) asked their permission to interview those teacher-librarians who met the criteria of being half-time or more (see Appendix A).

A total of 34 school boards were approached, with eight school boards having no teacher-librarians who met the criteria.

A research assistant was given names and school telephone numbers of teacher-librarians which were provided by the superintendents or program coordinators. Each teacher-librarian was contacted by telephone and informed of the purpose of the study and their school boards support. Their consent to be interviewed was requested, and once obtained a time convenient to them was scheduled for interviewing.

Eight graduate students and one professor from the Division of Learning Resources, Faculty of Education, Memorial University of Newfoundland conducted the interviews, which took place throughout Newfoundland and Labrador. Prior to the interviews taking place, all attended a seminar on the conducting of the interviews, to ensure that individual interviewers would follow a pre-established procedure. All interviewers were experienced teachers. They were considered to have good listening and communication skills and with their teaching experience they would know how to put respondents at ease. They would also be sensitive to the environment in which the respondents were operating.

Each interviewer was trained in specific methods and procedures before going into the field to ensure similarity in style and to ensure receipt of consistent data. Interviewers were made familiar with the purpose of the study, construction of the interview guide, the number of times to repeat a question, when to give the prompt, when to proceed to the next question, and where to record responses on the interview guide. Before beginning the interview a little time was to be spent with respondents to put them at ease; the purpose of the study was to be explained; and assurance of strict confidentiality of their responses was to be given to the respondents. If respondents appeared to be threatened by a question, the interviewer was to proceed to the next question, assuring the respondent they could return to the question later.

Teacher-librarians were interviewed privately in their school settings at a time which was convenient to them. From a total of 128 teacher-librarians, 115 were interviewed in person. Only six respondents were interviewed by telephone because of difficulties in scheduling. The interview ranged from thirty-five minutes to two hours, with the average interview taking

approximately one hour to administer. The interviews were completed within a six week period.

Data Analysis Procedures

The data were analyzed using semantic content analysis. Types and applications of content analysis have been identified and classified by many authors. Janis (1965) has offered the following classification:

1. Pragmatical Content Analysis - procedures which classify signs according to their probable causes or effects.
2. Semantical Content Analysis - procedures which classify signs according to their meanings.
3. Sign-vehicle analysis - procedures which classify content according to the psychophysical properties of the sign.
(cited in Krippendorff, 1980, p. 33)

Content Analysis, as defined by Krippendorff (1980), is "A research technique for making replicable and valid inferences from data to their context" (p. 21). Each of the fifteen competency areas was used to categorize a list of participants' comments on each competency. Categories were examined to combine similar ones. Sample representations of correct answers, appropriate or acceptable answers, and totally wrong answers were made. The correct answers were derived from statements in the

literature which were attributed to instructional theory experts and those with instructional development expertise.

CHAPTER FOUR

PRESENTATION OF FINDINGS

Introduction

The purpose of this study was to determine instructional development knowledge and competency among teacher-librarians in the province of Newfoundland.

The instrument was a highly structured interview guide which permitted open-ended responses. It was divided into three sections: demographic information; level of instructional development expertise; and specific knowledge of various competencies in instructional development. The instrument took approximately one hour to administer. It contained the questions to be asked on the left of each page, and at the right a checklist of possible correct answers were included when appropriate.

Results of the Study

The results of the study were first analyzed by recording all answers to all questions. The thirteen instructional development competency areas were then treated as headings, and responses to each question within these headings were categorized using semantic content analysis. Generally for each question there was a

range of 15 to 25 distinctly different responses. The various responses were then compared with previously established correct responses, using once again semantic content analysis. Correct and incorrect responses were then tabulated within each major category.

Demographic Information

One hundred and twenty-one teacher-librarians were questioned about their preparatory training and work experience. Analysis of the data indicated they have considerable preparatory training and have had extensive teaching experience.

Ninety-five percent indicated they have at least 5 years of university training; 36 percent have at least 7 years, and almost 15 percent indicated they have more than 7 years university training. One-half of the respondents indicated they had completed a high school teacher education program, while one-third studied elementary education, and nearly 15% indicated that they completed a primary education program.

More than one-third hold two university degrees and almost one-third have three degrees (see Table 1).

Table 1

Respondent Preparatory Training Programs

Degree	N = 121	Percent
Master of Education	41	34
Master (Learning Resources)	28	23
Learning Resources Diploma	33	27
Two Bachelor Degrees	81	67
Three Bachelor Degrees	40	33

Two respondents indicated they have no degree and three indicated they have four or more. One-third of respondents indicated they hold a Master of Education degree and two-thirds of those holding graduate degrees have a Master's degree in Learning Resources. Approximately one-quarter indicated they hold a Diploma in Learning Resources.

One-third indicated completion of the graduate course L6521 Instructional Development, and two-thirds indicated completion of other courses with an instructional development component.

Teacher-librarian experience included both classroom teaching and school library positions. Data indicated

that many respondents had considerable educational experience (see Table 2). Classroom teaching experience ranged mostly from 1 to 20 years, with 31 of the 121 respondents indicating five years or less of classroom teaching experience. Very few indicated that they had taught for twenty or more years.

Respondents' experience as teacher-librarians indicates the relative recency of such positions in Newfoundland. More than one-half indicated from 1 to 5 years teacher-librarian experience, and only five respondents had worked as a teacher-librarian for more than 15 years.

Of the 121 teacher-librarians responding to this item, 49 held full time positions and 72 held part-time positions of 50% or more time.

Table 2

Respondent Years Experience as Classroom Teacher and
Teacher-Librarian

Years	Classroom teacher		Teacher-librarian	
	N = 121	Percent	N = 121	Percent
00-05	31	26	67	55
06-10	29	24	27	22
11-15	21	17	22	18
16-20	18	15	4	3
21-25	14	12	--	--
26-30	7	6	1	1
31 +	2	2	--	--

Instructional Development Views

In order to determine participants' views regarding the functional or conceptual framework of instructional development, they were asked to signify their agreement or disagreement with five statements which reflected extreme functional or conceptual views. Letters representing either functional or conceptual statements are indicated on the right (see Figure 1).

In analysing responses, nearly one-half chose all five statements as reflecting their view of instructional development. Approximately one-fifth of participants

- | | |
|---|-----|
| A. A process for systematically designing developing, implementing, and evaluating instruction. | (F) |
| B. An application of the systems approach to coordinate all aspects of a problem toward the achievement of specific objectives. | (C) |
| C. A heuristic approach to the development of instruction. | (C) |
| D. The development of instruction from the total systems perspective rather than from the discrete components of that system. | (C) |
| E. A systematic process of translating relevant goals into effective learning activities. | (F) |

Figure 1. Statements Reflecting Functional and Conceptual Views of Instructional Development

chose four statements, omitting only C. In the interview situation many expressed doubt about the meaning of the term heuristic, which likely explains their omission of the statement. Only one-third of the participants were divided in their opinions, with approximately one-quarter choosing the functional statements, and only four respondents choosing the conceptual statements.

Items two to six of the interview asked participants to indicate the instructional development approach they preferred, given their educational roles. Number of

potential respondents to each question is indicated on the right (see Figure 2).

Functional Instructional Development

The instructional developer follows the steps outlined in an instructional development model to systematically design instructional units, modules or materials.

Conceptual Instructional Development

The instructional developer applies theories of learning and theories of instruction to identify teaching and learning problems. In applying theories he/she may at times perform functional tasks.

2. Of these two approaches, functional and conceptual, which do you feel describes your feelings about instructional development? (121)
3. Which approach do you use in the development of instructional packages? (121)
4. Why do you feel you use that particular approach? (121)
5. Have you completed L6521? (121)
6. Which approach do you feel L6521 suggests? (41)

Figure 2. Statements and Questions Describing Functional and Conceptual Views of Instructional Development

Respondents were evenly divided, with approximately one-half choosing to operate at the functional level and one-half at the conceptual level. Twelve did not respond.

When asked why they used a functional approach, respondents provided a variety of answers as follows:

- * Less time consuming, practical, easier to apply and fits current units of study.
- * Basically it is easier for teachers to understand and follow. You don't need theories of learning.
- * It suits the role of the librarian - to help teachers plan and be a resource to them for their instructional goals.

Those who used a conceptual approach responded with a variety of answers when asked why. Sample comments include:

- * There is no one absolute theory; there are different abilities, needs and approaches to teaching. There is more freedom to try out different theories for instruction.
- * Conceptual tends to consider individual learning problems and assists in formulating ways of correcting problems.
- * It goes along with the philosophy of learning.

In all twenty-seven respondents did not provide any rationale for using one or the other approach.

Only one-third indicated they had completed L6521, the one graduate course in instructional development, and of those three-quarters responded correctly (functional) when asked whether the course suggested a functional or conceptual approach. Most did not respond to the question, indicating in the interview situation that they

were not sure. One respondent thought the course presented a conceptual approach.

In summary, respondents indicate that teacher-librarians recognize both levels of instructional development; that both levels can be practised; and that one approach might be more appropriate than the other, depending on each individual situation.

Instructional Development

In order to determine respondents' knowledge of instructional development a series of six questions were posed. Respondents who answered question seven continued to the next question, while those who did not proceeded to the question after next. Number of potential respondents to each question is indicated on the right (see Figure 3).

In analysing responses very few answered correctly (A systematic procedure for solving instructional problems). Three-quarters answered with a variety of responses, a sample of which includes:

- * Developing some form of instruction for students.
- * Using any resources to get across the concepts and ideas in a particular grade level.

7. What do you understand to be meant by the term "instructional development"?	(121)
8. Where have you learned about instructional development?	(103)
9. Instructional development is based on a number of underlying theories. Can you name some of these theory bases?	(121)
10. What do you perceive to be the difference between curriculum development and instructional development?	(121)
11. What is the relationship of instructional development to educational technology?	(121)
12. Where does instructional development fit into the following scheme if you think of the curriculum as going through three different stages, 1. Curriculum determination (deciding what subject matter to include); 2. Curriculum development; 3. Curriculum implementation (the teacher interprets the curriculum by doing classroom instruction).	(121)

Figure 3. Questions Included in the Category Instructional Development

A small number could not provide any answer.

When asked where they had learned about instructional development approximately one-third indicated from university courses only, while another one-third indicated university courses in combination

with other sources. The remaining one-third chose various combinations of other sources, including school board in-service, classroom teaching experience, and the like. Nine gave no response.

More than three-quarters of respondents indicated no knowledge of any underlying theories of instructional development. The one instructional development course required for the school librarian graduate degree is a practicum, designed to provide functional level experience only. The underlying theories would not have been dealt with in this course to any extent, which probably explains respondents' lack of knowledge. Only one respondent supplied the three theoretical bases (learning theory, communications theory, and systems theory). A few respondents indicated learning theory only. Others gave the names of theorists, for example, Bloom or Piaget. One respondent mistakenly thought heuristic method and resource-based learning were theory bases of instructional development.

When asked to indicate the difference between curriculum development and instructional development, only one respondent indicated correctly that curriculum development is philosophy-based, has broad goals and has a subject-matter thrust, while instructional development

is psychology-based, has specific goals, and has a learning activity thrust. More than one-eighth responded with partially correct answers. Nearly three-quarters provided various answers which were so general that they were meaningless, such as:

- * Material you must cover; how material is to be taught and sources to be used.
- * Development of an entire course of studies.

In all approximately one-eighth could not provide any answer to this question.

Only nine respondents indicated that instructional development is a subset, theory based application of educational technology. Approximately two-thirds viewed educational technology as any form of media. Various vague responses include:

- * Educational technology is used to implement instruction.
- * Instructional development makes use of technology.
- * Technology influences students; they learn and retain more.

These responses indicate respondents' view educational technology as any form of media that can aid instruction. This is what Heinich (1970) refers to as technology in education. Approximately one-third of the respondents could not provide any answer to this question, indicating

they did not understand the relationship of instructional development and educational technology.

Approximately one-third responded correctly when they indicated that instructional development could occur at all three stages of curriculum. More than one-third of the respondents indicated that instructional development occurred at the curriculum implementation stage and a few indicated the curriculum development stage. In the interview situation some commented that instructional development should probably be in all three stages, but most respondents did not see instructional development fitting in at the curriculum determination stage because the curriculum was predetermined for them by the Department of Education, and they had no input at this stage. Only four respondents could not provide any answer to this question.

Conduct Needs Assessment

In order to determine respondents' knowledge of the this competency area a series of five questions were posed, in ascending order of difficulty. Respondents were asked to reply positively or negatively to questions 13 and 15. Those who responded positively continued with further indepth questions about needs assessment, while

respondents who replied negatively proceeded to the next competency area (or next questions). Number of potential respondents to each question is indicated on the right (see Figure 4).

13. Are you familiar with the term "needs assessment"?	(121)
14. What do you think is meant by the term "needs assessment"?	(109)
15. If someone asked you to conduct a needs assessment, would you know how to go about it?	(109)
16. How would you go about conducting a needs assessment?	(67)
17. Do you consider needs assessment to be problem oriented or solution oriented?	(109)

Figure 4. Questions Included in the Category "Conduct Needs Assessment"

Ninety percent indicated familiarity with the term 'needs assessment' (see Table 3).

Table 3

Respondent Familiarity with the term Needs Assessment

Familiar	N = 121	Percent
Yes	109	90
No	12	10

Three-quarters of the respondents who indicated familiarity with the term 'needs assessment' thought it related to the learner and the environment. A sample of responses include:

- * Assess the needs of the learner and the curriculum.
- * Individually examine each student to determine their level and need.
- * Examine the audience and learning environment; establish what is needed to fulfill the learning objectives.

Less than one-quarter of respondents viewed needs assessment as determining school or instructional needs.

A sample of responses include:

- * Determine the needs of the school.
- * Assess what sources are available and determine if there is a need to develop an instructional package.

Two respondents correctly responded with "A way to describe instructional problems". In all only four respondents could not provide any answer to this question.

Another preliminary question in this competency area asked respondents to answer positively or negatively whether they could do a 'needs assessment'. Those who indicated that they could continued with further indepth questions about 'needs assessment', while respondents who indicated they could not proceeded to the question after next. More than one-half responded positively to this question (see Table 4).

Table 4

Respondents Knowledgeable about how to Conduct a Needs Assessment

Knowledgeable	N = 109	Percent
Yes	67	61
No	42	39

In analyzing responses 14 indicated the use of a measurement instrument as is indicated by the following responses:

- * Design an instrument; carry out a survey; determine audience; analyze results.
- * Send a questionnaire and on it list topics of selection looking for feedback.

One-third looked at the learners and the instruction:

- * Determine level of learner; compare their level to where you want them to be; do a task analysis in terms of their specific needs.
- * Assess the learners, determine their needs and adjust the instruction.

In the interview many commented they would need help, as they had never done one before. One respondent felt he/she would use a learning development kit.

More than one-half of the respondents considered needs assessment to be solution-oriented, whereas approximately one-quarter correctly understood needs assessment to be problem-oriented. Ten thought needs assessment was both problem and solution oriented. From the responses to the previous questions regarding needs assessment it appears teacher-librarians are looking for some method to aid in solving instructional problems, and from their comments in the interview situation they do not have the knowledge to proceed on their own.

Conduct Learner Analysis

In order to determine respondents' knowledge of this competency area a series of seven questions were posed, in ascending order of difficulty. Respondents were asked to reply positively or negatively to questions 18, 20, and 23. Those who replied positively continued with further questions, while respondents who replied negatively proceeded to the question after next or the next competency area. Number of potential respondents to each question is indicated on the right (see Figure 5).

18.	Are you familiar with the term "learner analysis"?	(121)
19.	What do you think is meant by the term "learner analysis"?	(78)
20.	If someone asked you to conduct a learner analysis, would you know how to go about it?	(78)
21.	Describe how you would go about it?	(54)
22.	I'm going to name some characteristics of learners, could you indicate by yes or no which are important in doing a learner analysis? (See Figure 6).	(78)
23.	Are you familiar with learning theories?	(78)
24.	Which learning theories would you apply in doing a learner analysis?	(58)

Figure 5. Questions included in the Category "Conduct Learner Analysis"

Nearly two-thirds of the respondents indicated familiarity with the term 'learner analysis' (see Table 5).

Table 5

Respondent Familiarity with the term Learner Analysis

Familiar	N = 121	Percent
Yes	78	64
No	43	36

More than one-half of these respondents indicated correctly that the term meant to analyse the learners. One-third provided various responses. Many of which gave some indication of a general idea about learner analysis, but were lacking in clarity. These include:

- * Determine background knowledge of learner before teaching new content.
- * Determine how someone learns something.

One respondent thought the term meant to "evaluate the learners", while another stated "How curriculum development is to be applied to class, students or situation". In all only three could not provide any answer to this question.

Respondents were asked to reply positively or negatively when asked if they knew how to conduct a learner analysis. Those who indicated they could continued with the next question, while respondents who indicated that they could not, proceeded to the question after next. More than three-quarters indicated that they could (see Table 6).

Table 6

Respondents Knowledgeable of Conducting a Learner Analysis

Knowledgeable	N = 78	Percent
Yes	54	69
No	24	31

When conducting a learner analysis approximately three-quarters indicated they would look at the learner and the instruction:

- * Research ways children at specific levels learn; study student records to determine where they are and programs completed; talk to teachers who work with the children.
- * Gather information on the learner and use this when considering the instructional development process.

Three indicated use of a measurement instrument:

* Use questionnaires to learn about group.

One respondent repeated to do a needs assessment. In all, one-quarter could not provide any answer.

In order to determine how knowledgeable respondents were regarding learner characteristics a list of thirteen characteristics were read and respondents were asked to indicate which should be included in a learner analysis. To analyse responses, characteristics were grouped into three areas: essential; important; and less important (see Figure 6).

Essential	Important	Less Important
Reading ability	Emotional maturity	Religion
Pre-requisite knowledge	Socio-economic status	Parent employment
Pre-requisite skills	Age	Sex
Special aptitudes		
General ability level		
Attention span		
Writing abilities		

Figure 6. Learner Characteristics and Importance Rating in Conducting a Learner Analysis

For respondents to be considered knowledgeable in this competency they must have indicated all those considered essential and two of the three considered important. In all seventy respondents met the criteria to be considered knowledgeable in doing a learner analysis; only eight of those responding to this series of questions were deemed to lack knowledge.

To determine if respondents were familiar with learning theories a preliminary question was asked and respondents were asked to reply positively or negatively to it. Those who indicated that they were familiar with learning theories continued with one other question, while respondents who indicated they were not familiar with learning theories proceeded to the next competency area. Three-quarters indicated they were familiar with learning theory (see Table 7).

Table 7

Respondent Familiarity with Learning Theories

Familiar	N = 78	Percent
Yes	58	74
No	20	26

Given this high response it could be assumed that a similar high response would be received on the next item, which asked for information regarding specific learning theories. However, more than one-half could not provide any answer to this question. Respondents commented, in the interview situation, that they knew learning theories but could not name any. Less than one-half provided a variety of correct responses, which included:

- * Piaget's Developmental Theory.
- * Reinforcement theory.
- * Gagné and Skinner Learning Theories.
- * Piaget, Ausubel, and Bruner Learning Theories.

Develop and Sequence Behavioural Objectives

In order to determine respondents' knowledge of this competency area a series of seven items were posed, in ascending order of difficulty. Respondents were asked to reply positively or negatively to questions 26 and 29. Those responding positively continued with indepth questions about behavioural objectives, while those who replied negatively proceeded to the question after next. Number of potential respondents to each question is indicated on the right (see Figure 7).

25. What do you think is meant by the term "behavioural objectives"?	(121)
26. If someone asked you to develop behavioural objectives would you be able to do so?	(121)
27. Please name the three main parts of a behavioural objective?	(102)
28. There is more to behavioural objectives than simply writing them. Objectives should reflect various levels of knowledge and skills. How do you ensure that your objectives cover these various levels?	(121)
29. Are you familiar with objective hierarchies, such as those developed by Bloom and Gagne?	(121)
30. What can you tell me about either of these?	(99)
31. There are various opinions about use of behavioural objectives, some very positive some very negative. What is the most common concern expressed about the behavioural objective movement?	(121)

Figure 7. Questions Included in the Category "Develop and Sequence Behavioural Objectives"

Analysis of responses indicated that more than one-half knew behavioural objectives meant "what you want the learners to accomplish". Approximately one-third responded with a variety of answers as follows:

- * Expected responses that can be measured.
- * Specific results you want to achieve.

* Stating objectives in terms of what the child can do.

One respondent thought behavioural objectives meant "What teacher would observe in the way students act". In all, only ten could not provide any answer to this question.

Respondents were asked to reply positively or negatively as to whether or not they could develop behavioural objectives. Those who responded positively were directed to the next question, while those responding negatively proceeded to the question after next. More than three-quarters of the respondents claimed they could develop behavioural objectives (see Table 8).

Table 8

Respondent Ability to Develop Behavioural Objectives

Ability	N = 121	Percent
Yes	102	84
No	19	16

In response to the next question in the sequence, approximately one-eighth could name the three main parts of a behavioural objective, which are the conditions, the

behavioural verb, and the standard or criterion. More than one-third of the respondents provided a variety of incorrect responses, some of which include:

- * Identify learner; criteria level; task.
- * What expect students to do; how it is expected to be done; time frame for completion.
- * Identify goal; develop plan to achieve goal; reinforcement to achieve changes in behaviour.

Approximately one-half could not provide any answer to this question.

When asked how to ensure that objectives cover the various levels of knowledge and skills in a subject matter area, only one respondent correctly named the three domains of Bloom's Taxonomy (cognitive, psychomotor and affective). Almost one-quarter responded with "Bloom" alone and four named a single part of Bloom's cognitive domain. One-third provided various responses which included:

- * Concrete to cognitive.
- * Different types of instruction.
- * Evaluation/testing.

One mentioned I.E.P. (Individual Educational Plan), indicating a knowledge of Special Education. In all, more

than one-third could not provide any answer to this question.

To determine if respondents were familiar with Bloom and Gagné's objective hierarchies a preliminary question was asked. Respondents were asked to reply positively or negatively to this question. Those who indicated they were familiar with these hierarchies continued to the next item, while those who indicated they were not familiar with them proceeded to the question after next. More than three-quarters responded positively (see Table 9).

Table 9

Respondent Familiarity with Objective Hierarchies

Familiar	N = 121	Percent
Yes	99	82
No	22	18

In response to the next item which asked for specific information about Bloom's or Gagné's classification scheme, nearly all respondents indicated a complete lack of knowledge. Only three respondents indicated that Gagné's scheme involved a programmed

approach to learning. In all nearly one-quarter could not provide any answer to this question.

Only three respondents answered correctly when they indicated that the objectives focus on low level learning as the major concern expressed about the behavioural objective movement. More than one-third provided a variety of responses, a sample of which includes:

- * Objectives restrict learning; too structured.
- * Teacher does not have them written only in their heads.
- * Dehumanize learning; reduces learning to a process.

In all more than one-half could not provide any answer to this question.

Conduct Environmental Analysis

In order to determine respondents' familiarity with this competency area two items were posed, in ascending order of difficulty. Number of potential respondents to each question is indicated on the right (see Figure 8).

Less than one-quarter of respondents were familiar with the term environmental analysis. Two-thirds of the respondents provided a variety of partial responses as follows:

- * Entire school; socio-economic climate.

- | | |
|---|-------|
| 32. What do you think is meant by the term "environmental analysis"? | (121) |
| 33. Which elements of the instructional environment would be important to include in an environmental analysis? (See Figure 9). | (121) |

Figure 8. Questions Included in the Category "Conduct Environmental Analysis"

- * Environment conducive to learning.
- * Student background.

In all one-eighth of respondents could not provide any answer to this question.

In order to determine how knowledgeable respondents were regarding elements to include in an environmental analysis a standard was established. To analyse the responses elements were considered as either essential or important, and were grouped into two categories (see Figure 9).

<u>Essential</u>	<u>Important</u>
Human resources	Size and location of space
Materials	Noise level
Non-human resources	Time
Expertise of personnel	Cost

Figure 9. Elements of Environmental Analysis and Relative Importance Rating

To be considered knowledgeable in doing an environmental analysis, respondents must have indicated all those factors considered essential and three of the four considered important. More than one-third met the criteria to be considered knowledgeable in conducting an environmental analysis. Approximately one-third provided various partial or incorrect responses to this item as follows:

- * Lighting, ventilation, proper seating.
- * Teachers, students, curriculum, administrative policies, resources.
- * High expectations spent on task.

In all less than one-quarter could not provide any answer to this question.

Determine and Sequence Content

In order to determine respondents' knowledge of this competency area five questions were posed, in ascending order of difficulty. Respondents were asked to reply positively or negatively to question 35. Those who responded positively continued with further questions about the terms task analysis and concept analysis, while those respondents who replied negatively continued to the question after next (see Figure 10).

34. What do you think is meant by the term "subject matter structure"?	(121)
35. Are you familiar with the terms "task analysis" and "concept analysis"?	(121)
36a. How would you explain task analysis?	(80)
36b. How would you explain concept analysis?	(80)
37. Could you describe the function of entry level behaviour in sequencing instructional content?	(121)

Figure 10. Questions Included in the Category "Determine and Sequence Content"

More than one-half of the respondents answered correctly when they indicated the term subject matter structure meant "the way the subject matter is organized". Approximately one-quarter of respondents provided a variety of partial or incorrect responses as follows:

- * Hierarchy in developing a subject.
- * The form subject matter appears in the textbook.
- * Accommodates all students.

In all less than one-quarter of respondents could not provide any answer to this question.

Two-thirds of respondents indicated they were familiar with the terms task analysis and concept

analysis although some of their comments during the interviews indicated that, while they had heard of these terms, they only vaguely knew what they meant (see Table 10).

Table 10

Respondent Familiarity with the terms Task Analysis and Concept Analysis

Familiar	N = 121	Percent
Yes	80	66
No	41	34

When asked to explain task analysis only five respondents provided the correct answer as follows:

- * A map of essential skills needed by the learner.

More than one-half of the respondents provided a variety of partial or incorrect answers, a sample of which includes:

- * Breakdown tasks into manageable components to be learned successfully.
- * Job (task) to be done.
- * Procedures to go through.

In all eleven of the respondents could not provide any answer to this question.

When asked to explain concept analysis only six respondents provided the correct answer as follows:

- * Map of knowledge needed by learners.

More than two-thirds of the respondents provided a variety of partial or incorrect responses to this item, a sample of which includes:

- * Understanding the student must reach.
- * Breakdown of main concepts into smaller units.
- * Apply learning to a new situation.

In all less than one-third of the respondents could not provide any answer to this question.

More than one-third of the respondents could describe the function of entry level behaviour as establishing the beginning steps in the instructional sequence. Approximately one-third of the respondents provided a variety of partial or incorrect responses, a sample of which includes:

- * Level of skills a student begins with and start there.
- * If not established the behavioural objectives won't be met.
- * Entry level matches the task.

In all one-quarter of the respondents could not provide any answer for this question.

Determine and Sequence Learner Activities

In order to determine respondents' knowledge of this competency area four questions were posed, in ascending order of difficulty. Number of potential respondents to each question is indicated on the right (see Figure 11).

- | | |
|--|-------|
| 38. When selecting learning activities, what do you use as a basis for selection? | (121) |
| 39. If you integrate the teacher's learning activities and the learning skills continuum of the school, what is the logical outcome? | (121) |
| 40. Which patterns do you use in sequencing your learning activities? | (121) |
| 41. Which tools are available to aid you in the sequencing of learner activities? | (121) |

Figure 11. Questions Included in the Category "Determine and Sequence Learner Activities"

Less than one-quarter of respondents answered the first question correctly by indicating objectives. Three-quarters of the respondents provided various partial or incorrect responses, a sample of which includes:

- * Level and ability of child; goals.
- * Scheduling.
- * Teaching guides; skills continuum.

In all nine respondents could not provide any answer to this question.

On the next item, only three respondents answered correctly indicating integration across the curriculum as the logical outcome of integrating learning activities and the skills continuum. Three-quarters of respondents provided various partial or incorrect responses, a sample of which includes:

- * Better learning.
- * Accomplish the aim of the course.
- * Better student knowledge and performance.

One respondent stated that such integration would lead to boredom for learners. In all one-fifth of the respondents could not provide any answer to this question.

More than one-half of the respondents could provide a pattern for sequencing learning activities. A sample of responses include:

- * Temporal order; prerequisite knowledge and skills.
- * Easy to difficult.
- * Known to unknown.

One-quarter of the respondents answered with only the prompt, after it was given. A few respondents provided various incorrect responses as follows:

- * Print to non-print.
- * Include something the child will succeed in; no pattern.

In all eighteen of the respondents could not provide any answer to this question.

More than one-quarter of the respondents indicated that the tools available to them for sequencing learning activities included textbooks, teachers' guides, and learning skills continua. One-half of the respondents provided a variety of partial or incorrect responses, some of which includes:

- * Curriculum; materials; audio-visual equipment.
- * Test results; curriculum guides; resources.
- * Children's records; parents; teachers; students.
- * Assessment; experience.
- * A good library.

In all slightly less than one-fifth of the respondents could not provide any answer to this question.

Select Appropriate Resources

In order to determine respondents' knowledge of this competency area five questions were posed, in ascending order of difficulty. Number of potential respondents to each question is indicated on the right (see Figure 12).

42.	What do you use as the basis for selection of instructional resources?	(121)
43.	What do you understand by the term "selection aids"?	(121)
44.	Which selection aids are you familiar with?	(121)
45.	How do you determine the appropriateness of resources?	(121)
46.	What are the five key attributes of the various media which should be considered in the selection of resources?	(121)

Figure 12. Questions Included in the Category "Select Appropriate Resources"

Objectives are considered most important to be the base for the selection of instructional resources. Approximately one-eighth of the respondents indicated that they used objectives as the basis for selection of instructional resources. More than three-quarters considered other elements, some of which include:

- * Course content.
- * Teacher preference and suggestions.
- * Teacher requests; previews.
- * Observed needs to address individual needs and the curriculum.
- * Expert recommendations.
- * Suitable to school; functional; accessible.

In all only five respondents could not provide any answer to this question.

In response to the item on selection aids, more than one-half of the respondents were knowledgeable, indicating that selection aids were professional materials to aid in the selection of appropriate resources. One-quarter of the respondents provided a variety of partial or incorrect responses, a sample of which includes:

- * A reliable source to aid in selection of materials.
- * Bibliographies to evaluate resources.
- * Supplementary material to course textbook.

In all thirteen respondents could not provide any answer to this question.

Numerous selection aids are available for teacher-librarians. To determine if respondents were familiar with selection aids a standard of four commonly

recognized selection aids were set. One-third of the respondents met this criteria. Selection aids recommended by respondents include:

- | | |
|-----------------------------|--------------------------|
| * Wilson Library Bulletin | * Quill and Quire |
| * Booklist | * School Library Journal |
| * Horn Book | * The Webb |
| * Children's Books in Print | * Bookmark |
| * Atlantic Book Choices | * Wilson Catalogue |
| * Wynar's Reference Guide | * Books in Canada |

In all, approximately one-half of the respondents could not provide any answer to this question.

Two important considerations in determining the appropriateness of resources are (1) that resources match the objectives, and (2) that resources be previewed. One-quarter of the respondents indicated that they determined appropriateness of resources in one of these two ways. More than two-thirds of the respondents provided a variety of partial or incorrect responses, a sample of which includes:

- * Suitability to school; curriculum; content; group.
- * Knowledge level of students.
- * Meet students' and teachers' needs.

In all only five respondents did not provide any answer to this question.

In previewing instructional resources one should consider key attributes of the various media, which are motion, colour, random access, pacing, sensory mode. Respondents were asked to indicate the key attributes. Only one respondent could name all five attributes, while two-thirds of the respondents provided a variety of partial or incorrect answers, a sample of which includes:

- * Currency; accuracy; suitability to grade level and content.
- * Appropriateness; clarity; validity; useability; reliability.
- * The five senses.

In all one-quarter of respondents could not provide any answer to this question. Many respondents commented in the interview situation they had never heard of attributes of the various media, and were unsure of what the question meant.

Determine Appropriate Teaching Strategies

In order to determine respondents' knowledge of this competency area four questions were posed, in ascending order of difficulty. Respondents were asked to reply positively or negatively to question 48. Those who responded positively continued with another question about teaching strategies, while respondents who answered

negatively proceeded to the next question. Number of potential respondents to each question is indicated on the right (see Figure 13).

47. What things do you consider when selecting or determining appropriate teaching strategies?	(121)
48. Do you consider any one teaching strategy to be superior to others?	(121)
49. Which one?	(26)
50. Can you name some other teaching strategies you are familiar with?	(121)

Figure 13. Questions Included in the Category "Determine Appropriate Teaching Strategies"

When considering which teaching strategies are appropriate to a given situation, two elements to consider are the objectives and the learner analysis. One-third of the respondents indicated that they considered one of these elements in determining appropriate teaching strategies. Approximately two-thirds of the respondents provided a variety of partial or incorrect responses, a sample of which includes:

- * Suitability to learner and curriculum; interest level of students.
- * Student abilities; available resources.

- * Method of evaluation.
- * Availability of resources.

In all only six respondents could not provide any answer to this question.

There are many teaching strategies that can be used in the instructional process. In order to determine if respondents felt that any strategies were superior to others they were asked to reply positively or negatively to this question. Those respondents who indicated that there were superior strategies were asked a further question about their preferred strategy, while those responding negatively were directed to the question after next. Approximately one-fifth indicated there was a superior strategy (see Table 11).

Table 11

Respondent Consideration of a Teaching Strategy to be Superior

Superior	N = 121	Percent
Yes	26	21
No	95	79

The 26 respondents were then asked to indicate the strategy which they felt was superior. Commonly named strategies include:

- * Hands-on.
- * Resource-based learning.
- * Lecture.
- * Mix of media and activities.

It should be noted that most of the strategies named are considered to be general approaches in the pedagogical literature, rather than teaching strategies.

To determine if respondents were knowledgeable about different teaching strategies, it was decided that they should be able to name a minimum of three strategies. One-half of the respondents met this criteria, including in their replies the following:

- * Lecture; discussion; small groups; displays; field trips.
- * Advance organizers; discovery learning; behaviour modification; lecture; learning centers.
- * Small groups; demonstration; research projects.

More than one-quarter responded naming only one or two strategies. Some respondents, in the interview situation, said that these strategies were what they used, but they may have been familiar with others. However, they failed

to name any others. In all less than one-fifth of the respondents could not provide any answer to this question.

Evaluate and Revise Instructional Content

In order to determine respondents' knowledge of these two competency areas eight questions were posed, in ascending order of difficulty. Respondents were asked to reply positively or negatively to question 53. Those who responded positively continued with another question about evaluation, while respondents who replied negatively proceeded to the next questions. Number of potential respondents to each question is indicated on the right (see Figure 14).

In response to question one, only one respondent answered correctly that evaluation is the collection and use of information to make decisions about instructional programs. More than three-quarters provided a variety of partial or incorrect responses, a sample of which includes:

- * Determining what students have achieved.
- * Assessment of what was taught, how it was taught, and effect of instruction on students.
- * Testing.

51. What do you understand to be meant by the term "evaluation"?	(121)
52. What is usually used as the basis for the evaluation of instructional programs?	(121)
53. If there are no written objectives, could instructional programs, modules, or units be evaluated?	(121)
54. How?	(61)
55. What do you understand by the term "criterion-referenced testing"?	(121)
56. In evaluating an instructional program, module or unit, which components should be examined?	(121)
57. In developing instructional units or modules, when is the best time to develop the instructional tests?	(121)
58. How would you make use of the feedback you receive from evaluating your instruction?	(121)

Figure 14. Questions Included in the Category "Evaluate and Revise Instructional Content"

These answers indicate that most respondents see evaluation as some form of testing to determine student performance. In all only four could not provide any answer to this question.

Objectives are commonly used as the basis for evaluation of instructional programs. In response to the

next question one-quarter of respondents indicated this was the case. More than two-thirds provided a variety of partial or incorrect responses, a sample of which includes:

- * Tests; assignments; observations.
- * Performance on a written test.
- * Children's interest and knowledge gains.

One respondent indicated that the basis for evaluation is if students "Attains 50% of desired objectives". In all only a few of the respondents could not provide any answer to this question.

To determine if respondents knew that elements other than objectives could be used in the evaluation of instructional programs, they were asked to reply positively or negatively to this question. Those who indicated that other elements could be used were asked a further question about this, while those who responded negatively proceeded to the question after next. The respondents were evenly divided on this item (see Table 12).

Table 12

Respondents Considering Evaluation Possible without
Written Objectives

Possible	N = 121	Percent
Yes	61	50
No	60	50

The 61 respondents who replied positively were asked how instructional programs could be evaluated in the absence of objectives. Only four responded correctly stating that the evaluator establishes program objectives and looks at audience concerns and issues. More than three-quarters provided a variety of partial or incorrect responses, a sample of which includes:

- * Evaluate objectives in teacher's head as if they were to be written; teacher understands what objectives are.
- * Personal interviews and observations.
- * If student enjoys instructional unit; if student can talk about concepts after instruction.
- * Use evaluation model.

In all seven could not provide any answer to this question.

Only eleven respondents understood that criterion-referenced testing provides a means of determining how well the learner has achieved in relation to specific objectives. Approximately one-half provided a variety of partial or incorrect responses, a sample of which includes:

- * Base testing on a particular criteria before instruction.
- * Test subject matter.

In all nearly one-half of the respondents could not provide any answer to this question.

All components of an instructional program should be examined when performing an evaluation of that program. In order to determine if responses were correct, a standard of any four key components was established to indicate whether or not respondents were knowledgeable about program evaluation. One-half of the respondents met the established criteria. Those who did not meet the criteria did indicate some knowledge of program evaluation, providing responses such as:

- * Content; objectives.
- * Previous knowledge; teaching strategies.
- * Learner; activities.

In all only a few respondents could not provide any answer to this question.

Instructional tests should be developed before instruction begins, if one is to follow an instructional development model. More than one-half of the respondents indicated that this was the case. Approximately one-third were divided between during and after instruction. Some respondents in the interview situation commented that it could be done anytime; before, during and after. In all only three could not provide any answer to this question.

When asked how respondents would make use of the feedback from the instructional program evaluation, approximately two-thirds indicated a correct response such as revision of instruction. One-third of the respondents provided a variety of partial or incorrect answer, as follows:

- * To reteach and choose new strategy.
- * Modify content or strategies.
- * Change strategies and do remediation.

These responses, while correct in terms of student assessment, indicated that they see evaluation only as testing for student gains. If the outcome is not desirable then reteaching or changing strategies is thought to make the difference. Evaluative feedback should be more broadly applied than these responses

indicate. In all only a few respondents could not provide any answer to this question.

Create Instructional Units

In order to determine respondents' knowledge of this competency area four questions were posed, in ascending order of difficulty. Respondents were asked to reply positively or negatively to question 61. Those who responded positively were asked another question about the equating of creating instructional units and the doing of instructional development, while respondents who replied negatively proceeded to the next competency area. Number of potential respondents to each question is indicated on the right (see Figure 15).

59. Do you know of any "planning guides" which could be used to create instructional units?	(121)
60. What do you use as the basis for the creation of instructional units?	(121)
61. Are the development of instructional units and the doing of instructional development synonymous?	(121)
62. How do they differ?	(61)

Figure 15. Questions Included in the Category "Create Instructional Units"

In planning instructional units planning guides have been recommended to facilitate the planning process. When respondents were asked if they knew of any such guides, one-eighth answered correctly, indicating Fuel for Change, Partners in Action, or the Haycock's guide. Approximately one-third provided a variety of responses, some of which include:

- * Department of Education material; curriculum guides.
- * Board office material; teachers' guides.
- * Program of studies from provinces; United States, Information Power.

One respondent answered erroneously, "The Center for Applied Research and Education". In all one-half of the respondents could not provide any answer.

When asked what to use as the basis for the creation of instructional units, only seven respondents indicated correctly that all aspects from objectives to formative evaluation should be included. A small number included some of the elements of the instructional process, such as: content, objectives, learners, selection aids. Two-thirds of the respondents provided a variety of partial or incorrect responses as follows:

- * Curriculum guides.

* Textbooks and resources.

* Need.

In all eighteen respondents could not provide any answer to this question.

Respondents were asked to answer positively or negatively to the question "are the development of instructional units and the doing of instructional development synonymous". This question was designed to confirm teacher-librarian opinions about the functional and conceptual levels of instructional development, dealt with in section two of the instrument. Those who responded negatively were asked a further question, while those responding positively were directed to the next competency area. Responses were evenly divided (see Table 13).

Table 13

Respondents Equating the Creation of Instructional Units with the Doing of Instructional Development

Synonymous	N = 121	Percent
Yes	61	50
No	60	50

Responses confirm data elicited in Section Two, Questions 1 to 4. Those who answered positively are considered to be operating at the functional level while those who answered negatively are considered to be operating at the conceptual level. Those respondents operating beyond the functional level provided a variety of explanations regarding the broader scope of instructional development. Sample responses include:

- * The development of instructional units refers to specific instructional techniques whereas instructional development is a systematic design strategy applicable to all learning areas.
- * Instructional development is more than a step-by-step approach.
- * In the development of instructional units you use the instructional development model.
- * Instructional development is a process.

In all approximately one-half of the respondents could not provide any answer to this question.

Conduct Workshops/In-Service

In order to determine respondents' knowledge of these two competency areas two questions were posed, in ascending order of difficulty. Number of potential respondents to each question is indicated on the right (see Figure 16).

63. In designing and conducting in-service education versus classroom instruction, what is the most important consideration?	(121)
64. From an instructional design perspective, could you name three essential components of in-service workshops?	(121)

Figure 16. Questions Included in the Category "Conduct Workshops/In-service"

The adult learner is an important consideration in designing and conducting workshops and in-service training. In response to this question, more than one-half indicated correctly "adult learner or learner analysis". One-fifth of respondents provided a variety of partial or incorrect responses, a sample of which includes:

- * Instructional strategies.
- * Produce a skills continuum.
- * Strategies and time of day.

In all one-quarter of the respondents could not provide any answer to this question.

Only four respondents could name the three essential elements of in-service training and workshops, from an instructional design perspective. More than one-half

provided a variety of partial or incorrect responses, a sample of which includes:

- * Practical.
- * Planning; evaluation; participation.
- * Needs assessment; in-service around needs; feedback.

In all one-third of the respondents could not provide any answer to this question, indicating that these respondents were not knowledgeable in the competency area.

Consult with Individuals and Groups

In order to determine respondents' knowledge of this competency area two questions were posed, in ascending order of difficulty. Number of potential respondents to each question is indicated on the right (see Figure 17).

- | | |
|---|-------|
| 65. What would you consider to be important communication principles in establishing a good working relationship with teachers? | (121) |
| 66. What do you understand to be the relationship between instructional development and effective communication? | (121) |

Figure 17. Questions Included in the Category "Consult with Individuals and Groups"

When respondents were asked to indicate communication skills which enhance consultancy, only one respondent listed all five identified by the researcher as minimum criteria for a correct response, as follows:

- * Empathy.
- * Listening skills.
- * Organizing skills.
- * Acceptance.
- * Flexibility.

More than three-quarters provided a variety of partial or incorrect responses, a sample of which includes:

- * Understanding; listening; open; non-intimidating.
- * Leadership abilities; good PR person.
- * Be on par with audience.

In all nineteen of the respondents could not provide any answer to this question.

Only three of the respondents indicated correctly that the relationship of instructional development and effective communication is consultancy. One-half of the respondents provided a variety of partial or incorrect responses, a sample of which includes:

- * Instructional development used properly leads to more effective communication.
- * Effective communication as the basis of teaching.

- * Good communication, effective instructional development process.

One respondent said these terms were synonymous. In all approximately one-half of the respondents could not provide any answer to this question.

Communicate Effectively

In order to determine respondents' knowledge of this competency area one question was posed. Number of potential respondents to the question is indicated on the right (see Figure 18).

67. Can you name 3 essential elements of consultancy?	(121)
---	-------

Figure 18. Question Included in the Category "Communicate Effectively"

Only six respondents provided answers which included all three elements: expert in a given field, interpersonal communication expertise, and problem-solving and/or creative thinking ability. Approximately one-third of the respondents provided a variety of partial or incorrect responses, a sample of which includes:

- * Promoter; counsellor.
- * Good listener.
- * Easily approachable; able to confide in; observes confidentiality.

In all one-third of the respondents could not provide any answer to this question.

Summary

Participants' instructional development views indicated that they knew of both functional and conceptual views. They were aware that instructional development can be practised at both levels, and this researcher believes that their school situations dictate the approach they choose to use.

Participant knowledge about instructional development is scant. Responses indicate that they do not know what is meant by the term, and this is further compounded by their lack of knowledge of the underlying theories and their lack of understanding regarding where instructional development fits into the curriculum. In describing the differences between instructional development and curriculum development they see curriculum development as simply larger in scope than instructional development, and they see instructional development only in relation to resources and activities.

This finding is supported by their understanding of educational technology which they see only in terms of media; what has been referred to in the literature as Educational Technology One - the 'hardware' approach.

Teacher-librarians exhibited only general familiarity with most of the competency areas. When questioned about procedures for using competency areas and underlying principles and theories, it was evident that very few were knowledgeable to the extent that they could put into practise the instructional development approach assumed by the cooperative program planning movement in school librarianship.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to establish the level of instructional development knowledge and competency on the part of teacher-librarians in the province of Newfoundland. Since only teacher-librarians employed a minimum of half-time in the school library could be expected to implement a resource-based approach to teaching and learning, this group of 128 were the focus of the study. In-depth interviews were conducted with 121 teacher-librarians. Seven could not participate in the study.

In Canada, curriculum developers are aware of how rich in information and technology our world has become and are concerned about how to prepare students to function effectively in such an environment. Educators have realized that traditional teacher-based approaches are no longer adequate, and they emphasize a resource-based approach to teaching and learning which involves more than simply providing resources; it implies systematic planning, development, and the utilization of all learning resources.

To develop and implement a resource-based approach, cooperative program planning and teaching is recommended in the literature on school librarianship. Teacher-librarians and classroom teachers are expected to work together as teaching partners in the development and implementation of instructional units. For the teacher-librarian this requires a change in the traditional role. To be successful in the new role, the teacher-librarian must possess skills and competencies in instructional development.

Instructional development is an application of the field of educational technology. It is most frequently defined as "a systematic approach to the design, production, evaluation and utilization of complete systems of instruction, including all appropriate components and a management system for using them" (Gustafson, 1981, p. 2). Many influences, developing independently of each other, merged in the 1950s and 1960s to shape instructional development. It draws on developments in the fields of communication theory, educational psychology theory, and general systems theory. It can be implemented at two levels which Davies (1978) refers to as the 'engineering archetype' and the

'problem-solving archetype'; or as functional and conceptual instructional development.

The need for teacher-librarians to have instructional development competencies is evidenced in the various standards and provincial guidelines. This field study employed an indepth structured interview as the means of data collection, seeking teacher-librarians' general knowledge of instructional development and specific knowledge of fifteen instructional development competencies. The fifteen competency areas were derived from the Association for Educational Communications and Technology (AECT) Task Force Report on ID Certification (1982), entitled Task Force Report On Instructional Development Competencies. These were synthesized with competencies outlined in various Canadian documents.

Analysis of the demographic data demonstrates that the participants in the study have considerable teaching experience, much of which was as classroom teachers. Participants are also highly qualified in terms of teacher certification. Forty-one hold masters degrees with approximately one-half having graduate level qualifications in educational technology or school librarianship. Approximately one-third indicated that they completed the L6521 Instructional Development, the

one graduate course in the disciplinary area offered at Memorial University of Newfoundland. A considerable number of others indicated that they had completed courses in Learning Resources which had an instructional development component, but when questioned further they were either unclear or mistaken in this assumption.

Teacher-librarian knowledge of instructional development is attributed to university courses, for the most part. Their understanding of instructional development indicated that they consider it a pragmatic approach to the use of resources, fitting into the curriculum process at the curriculum implementation phase.

The results of the study indicate that teacher-librarians recognize the two levels of instructional development described in the literature. Their preference regarding functional and conceptual levels or approaches, they claim, is dictated by their individual educational role and how those roles are perceived by their colleagues. But the data indicated that they consider the relationship between educational technology and instructional development to fit within the old paradigm of technology in education. Given their lack of knowledge of the underlying principles and theories of

instructional development it is questionable whether approximately one-half of the respondents, as indicated in the interviews, could actually implement instructional development at the conceptual level.

Conclusions

Partners in Action (Ontario Ministry of Education, 1982), states; "The teacher-librarian is involved in the identification of teaching and learning strategies; working with teachers and students in the selection, production and evaluation of learning resources and serving as a consultant in planning effective learning activities" (p. 36). It is the premise of this study, and that premise has been supported in the professional literature, that the teacher-librarian must be knowledgeable about, and skilled in, instructional development in order to fulfill the role espoused in documents such as Partners in Action.

The results of this study indicate that the majority of teacher-librarians in Newfoundland schools lack all but superficial knowledge of the instructional development algorithm, which formed the basis of the research instrument. Teacher-librarians may indeed have tacit knowledge of instructional development which would

permit them to design effective instruction, however, if their knowledge is at the tacit level they are unable to communicate that knowledge, hence unable to lead in the cooperative program planning effort with the classroom teacher.

Most teacher-librarians indicated, in the interview situation, they would not feel comfortable in implementing the various stages of the instructional development process, and that their discomfort would be based on lack of adequate knowledge. The majority of teacher-librarians did not enjoy the indepth interviews, claiming that they felt they were "being tested, like in a university course". Their discomfort in the interview process was attributed to the fact that they could not answer many of the questions, were unsure of their knowledge, and at the same time, as teachers, felt that they should have comprehensive knowledge about all instructional matters.

If one considers the variety of programs completed by many in the teacher-librarian role, the lack of provincial guidelines regarding qualifications of teacher-librarians, and the fact that most respondents entered teacher-librarianship from the classroom with teaching certification only, doing courses in teacher-

librarianship or educational technology after the fact, if at all, it is understandable that most lacked instructional development knowledge. Most respondents indicated that they called on their classroom teaching experience to answer questions in the interview, rather than their school library experience.

It should be noted that it is only in the past decade that the role of the teacher-librarian has changed to focus on a partnership in instruction and in many parts of the province it is a relatively new idea to even have teacher-librarians in the schools. As a result of the recency of these developments there is a lack of provincial standards for the area of school librarianship.

The lack of role models in the school system is another factor which could be considered in exploring the lack of teacher-librarian knowledge of instructional development. There are no designated instructional developers, and those who might use the approach do so individually and informally. This, coupled with the fact that the majority of teacher-librarians are part-time only, indicates that there might be difficulty in adopting an instructional development role.

Recommendations

Based on the findings of this study, the researcher makes the following recommendations.

1. That further studies be done on teacher-librarians' knowledge of instructional development. This study focused on teacher-librarians' knowledge of the accepted instructional development algorithm. Follow-up studies could determine if teacher-librarians through their classroom teaching experience have developed heuristics for instructional development.
2. That further study be done on teacher-librarians' actual use of instructional development in the implementation of resource-based teaching and learning.
3. That studies of instructional development knowledge on the part of others in the school system, such as classroom teachers, program coordinators, and curriculum consultants, be implemented.
4. That the Department of Education, Government of Newfoundland and Labrador, establish

certification guidelines for teacher-librarian positions in the province.

5. That the Division of Learning Resources, Memorial University of Newfoundland, review the preparatory program for teacher-librarians to ensure that there is adequate preparation in instructional development knowledge and competency.
6. That the Faculty of Education, Memorial University of Newfoundland, explore the level of knowledge required by all teachers in the area of instructional development with a view toward making necessary adjustments to preparatory programs as required.
7. That greater opportunity for teacher-librarians to participate in workshops and in-service training on instructional development be provided by school boards, to ensure that those already in school library positions increase their knowledge of and competency in instructional development.

REFERENCES

- Alberta Education. (1985). Focus on learning: An integrated program model for Alberta school libraries. Edmonton: Author.
- American Association of School Librarians. (1960). Standards for school library programs. Chicago: American Library Association.
- American Association of School Librarians & the Department of Audiovisual Instruction, N.E.A. (1969). Standards for school media programs. Chicago: American Library Association.
- American Association of School Librarians & the Association for Educational Communications and Technology. (1975). Media programs: District and school. Chicago: Author.
- American Library Association. (1945). School libraries for today and tomorrow. Chicago: Author.
- Annett, J. (1964). The relationship between theories of learning and theories of instruction. In Programmierter Unterricht Und Lehnaschiner. Berlin: Pädagogische Arbeitsstelle.
- Association for Educational Communications and Technology Task Force on ID Certification. (1982). Competencies for instructional/training developing professional. DID Newsletter, 13, 3-4.
- Banathy, B. H. (1968). Instructional systems. California: Fearon.
- Beckwith, D. (1988). The Future of educational technology. Canadian Journal of Educational Communications, 17, 3-20.
- Boswick, N. (1970). The Certain Standards in context: A study of the American school library materials centre concept. Journal of Librarianship, 2, 160-174.
- Boswick, N. (1977). Resource-based learning. London: Heinmann Educational Books.

- Bigge, M. L. (1982). Learning theories for teachers (4th ed.). New York: Harper & Row.
- Branscombe, F. (1986). The standards revisited. School Libraries in Canada, 6, 23-24.
- Branscombe, F. R. & Newsom, H. E. (Eds.). (1977). Resource services for Canadian schools. Toronto: McGraw-Hill.
- Briggs, L. J. (Ed.). (1977). Instructional design: Principles and applications. New Jersey: Educational Technology Publications.
- British Columbia Teacher-Librarians' Association. (1986). Fuel for change: Cooperative program planning and teaching. Vancouver: Author.
- Brown, I. M. J. (1985). A Study of the evolution of school library media programs and the process of educational change with implications for program implementation. Unpublished master's thesis, Memorial University of Newfoundland, St. John's. Newfoundland.
- Brown, I. M. J. (1988 February). Resource-based learning. A paper presented at 2nd annual short course for administrators, St. John's, Newfoundland.
- Brown, I. M. J. & Kennedy, M. F. (1988, June). Instructional development: A conceptual approach. A paper presented at AMTEC'88, Halifax, Nova Scotia.
- Canadian School Library Association. (1967). Standards of library service for Canadian schools. Toronto: McGraw-Hill.
- Canadian School Library Association Report. (1980). The qualifications for school librarians. Alberta Learning Resources Journal, 3, 3-7.
- Carroll, F. L. (1981). Advances in school librarianship. Oxford: Pergamon Press.
- Craver, K. W. (1986). The changing instructional role of the high school library media specialist: 1950-84. School Library Media Quarterly, 14, 183-191.

- Davies, I. K. (1978). Prologue: educational technology: archetypes, paradigms and models. In J. Hartley & I. K. Davies (Eds.), Contributions to an educational technology. Vol. 2. (pp. 9-24). New York: Nichols Publishing Company.
- Davies, R. A. (1979). The school library media program: Instructional force for excellence (3rd ed.). New York: Bowker.
- Dexter, L. A. (1970). Elite and specialized interviewing. Illinois: North Western University.
- Diamond, R. M. (1980). Instructional development: One biased view (problems, issues and the future). Educational Technology, 20, 51-54.
- Educational Media Association of Canada. (1969). Media Canada: Guidelines for educators. Toronto: Pergamon.
- Educational Media Leadership Group. (1986). A statement of concern. Newfoundland: Educational Media Group.
- Gates, J. K. (1968). Introduction to librarianship. New York: McGraw-Hill.
- Good, H. G. & Teller, J. D. (1973). A History of American education. New York: MacMillan Company.
- Grazier, M. H. (1976). A Role for media specialists in the curriculum development process. School Media Quarterly, 4, 199-204.
- Grazier, M. H. (1979). The curriculum consultant role of the school library media specialist. Library Trends, 28, 263-279.
- Guba, E. G. & Lincoln, Y. S. (1981). Effective evaluation. San Francisco: Jossey-Bass.
- Gustafson, K. L. (1981). Survey of instructional development models. New York: ERIC Clearinghouse on Informational Resources.
- Hartley, J. (1978). Learning theory in practice. In J. Hartley & I. K. Davies (Eds.), Contributions to an educational technology. Vol. 2. (pp. 30-46). New York: Nichols Publishing Company.

- Hartley, J. & Davies, I. K. (Eds.). (1978). Contributions to an educational technology. Vol. 2.. New York: Nichols Publishing Company.
- Haycock, C. A. (1988). Cooperative program planning: A model that works. Emergency Librarian, 16, 29-32.
- Haycock, K. (1981). The role of the school librarian as a professional teacher: A position paper. Emergency Librarian, 8, 4-11.
- Heinich, R. (1970). Technology and the management of instruction. Monograph #4. Washington DC: Association for Educational Communications and Technology.
- Howson, G. (Ed.). (1970). Developing a new curriculum. Heinemann for Centre for Curriculum Renewal and Educational Development Overseas.
- Kemp, J. E. (1985). The instructional design process. New York: Harper & Row.
- Knirk, F. G., & Gustafson, K. L. (1986). Instructional technology. New York: Holt, Rinehart and Winston.
- Krippendorff, K. (1980). Content analysis: An introduction to its methodology. Beverly Hills: Sage.
- Lefrancois, G. R. (1982). Psychology for teaching. California: Wadsworth Publishing Company.
- Loertscher, D. (1982). The second revolution: A taxonomy for the 1980's. Wilson Library Bulletin, 56, 418-421.
- Loertscher, D. (1988). Taxonomies of the school library media program. Colorado: Libraries Unlimited, Inc.
- Lumsdaine, A. A. (1964). Educational technology, programmed learning, and instructional science. In E. R. Hilgard & H. G. Richey (Eds.). Theories of learning and instruction: The sixty-third yearbook of the national society for the study of education. (pp. 371-401). Chicago: University of Chicago Press.
- McInnes, J. (Ed.). (1985). LDR Networks: Teachers' resource book (A) to accompany flip flops and zoom shots. Toronto: Nelson Canada.

- Newfoundland Department of Education. (1979). High school biology science curriculum guide. Newfoundland: Author.
- Newfoundland Department of Education. (1981). Design for social studies K-VI in Newfoundland and Labrador. Newfoundland: Author.
- Newfoundland Department of Education. (1988). Primary curriculum guide. Newfoundland: Author.
- Norberg, K., Meierhenry, W. C., Ely, D. P., Kemp, J., & Hyre, A. L. (1967). The role of the media professional in education. Audiovisual Instruction, 12, 1026-1029.
- Ontario Ministry of Education. (1982). Partners in action: The library resource centre in the school curriculum. Toronto: Author.
- Reiser, R. A. (1987). Instructional technology: A history. In R. M. Gagné (Ed.). Instructional technology: foundations (pp. 11-41) New Jersey: Lawrence Erlbaum Associates Publishers.
- Romiszowski, A. J. (1981). Designing instructional systems. New York: Nicholas Publishing.
- Saettler, P. (1968). A History of instructional technology. New York: McGraw-Hill.
- Saskatchewan Teachers' Federation. (1986). The 4th R: Resource based learning. Saskatoon: Author.
- Soon, G. (1985). Cooperative program planning & teaching: an implementation of a program for effective instruction. Bookmark, 26, 153-169.
- Taylor, I. C. (1971). Resources for learning (2nd ed.). Harmondsworth: Penguin Books.

APPENDIX A - LETTERS



MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland, Canada A1B 3X8

*Division of Learning Resources
Faculty of Education*

Telex: 016-4101
Tel.: (709) 737-7544

To: Superintendent

From: Mary F. Kennedy, Associate Professor
Division of Learning Resources

Re: Research in School Librarianship

Date: April 2, 1989

My colleague, Jean Brown, and I are currently doing research in the area of instructional development. We are assisted by a few graduate students, who are working on our project for thesis credit or for research experience.

As part of a provincial study on the diffusion of instructional development knowledge, competency, and utility throughout the school system, we hope to interview all teacher-librarians who are assigned library responsibilities for more than fifty percent of their total teaching time. Teacher-librarians, according to current standards in the literature, are assumed to be capable of functioning as instructional developers, despite lack of courses in most preparatory programs in Canada. Hence our interest in this particular group. We wish to establish their level of knowledge, their use of instructional development competencies in the performance of their roles, and the sources of their instructional development knowledge and competency.

We request your permission to contact any teacher-librarians with your school board who are functioning as librarians for the designated minimum time. We shall seek the assistance of the program coordinator who is named library contact person in locating teacher-librarians. The interviews will be arranged at a time convenient for the interviewees, and should take a maximum of forty-five minutes each. We intend to conduct all interview between mid-April and the end of May. Of course, we understand that your permission in no way obliges the teacher-librarians to take part in the study. The decision to participate will be solely theirs.



MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland, Canada A1B 3X8

*Division of Learning Resources
Faculty of Education*

*Tele. 016 4101
Fax 016 4101*

We hope that you can accommodate our research needs. We look forward to hearing from you at your earliest convenience.

Yours truly,

Mary F. Kennedy



MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland, Canada A1B 3X8

164

*Division of Learning Resources
Faculty of Education*

Telex: 016 4101
Tel.: (709) 737-7544

To: Program Coordinator/ Contact Person for Library

From: Mary F. Kennedy
Associate Professor

Re: Research in School Librarianship

Date: April 2, 1989

My colleague, Jean Brown, and I are currently doing research in the area of instructional development. We are assisted by a few graduate students, who are working on our project for thesis credit or for research experience.

As part of the province-wide study on the diffusion of instructional development knowledge, competency, and utility throughout the school system, we hope to interview all teacher-librarians who are assigned library responsibility for a minimum of fifty percent of their time. Teacher-librarians, according to current standards in the literature, are assumed to be capable of performing as instructional developers, despite lack of courses in most preparatory programs in Canada. Hence our interest in this particular group. We hope to establish their level of knowledge, their use of instructional development competencies in the performance of their roles, and the sources of their instructional development knowledge and competency.

We have written the Superintendent of each board seeking permission to carry out the study. Assuming that permission is granted, we need to locate each teacher-librarian who is assigned library responsibilities for fifty percent or more of teaching time. We are seeking your help in locating such teacher-librarians.



MEMORIAL UNIVERSITY OF NEWFOUNDLAND

St. John's, Newfoundland, Canada A1B 3X8

Division of Learning Resources
Faculty of Education

Tel.: 016 4101
Tel.: (709) 737-544

Within one week we will contact you by telephone to ascertain who in your school board are potential interviewees. Of course, we realize that your provision of names in no way obliges the teacher-librarians to take part in the study. The decision to participate will be solely theirs.

We wish to thank you in advance for your cooperation in helping us to locate teacher-librarians who meet our specifications. We look forward to speaking with you shortly.

Yours truly,

Mary F. Kennedy

-

APPENDIX B - RESEARCH INSTRUMENTS

1. Definitions

Indicate your opinions of Instructional Development (ID) by circling the appropriate scale item in the columns on the right.

Scale: SA Strongly Agree D Disagree
A Agree SD Strongly Disagree

- | | | | | |
|---|----|---|---|----|
| 1. ID is a series of boxes and arrows with a feedback loop indicating a logical step-by-step approach to the development of instruction. | SA | A | D | SD |
| 2. ID is a process for improving the quality of instruction. | SA | A | D | SD |
| 3. ID is a common sense planning device using a cooperative effort to identify and define learning problems and develop a plan of action. | SA | A | D | SD |
| 4. ID is a process for systematically designing, developing, implementing, and evaluating instruction. | SA | A | D | SD |
| 5. ID is a heuristic approach to the development of instruction. | SA | A | D | SD |
| 6. ID is a set of procedures focusing on the processes as well as the products of teaching and learning. | SA | A | D | SD |
| 7. ID is the development of instruction from the total systems perspective rather than from the discrete components of that system. | SA | A | D | SD |
| 8. ID is an instructional problem-solving process. | SA | A | D | SD |
| 9. ID is a process in which there is no one set of appropriate moves for one best solution. | SA | A | D | SD |

Indicate the # of the definition you most preferred _____.

Indicate the # of the definition you least preferred _____.

2. Competencies

This section lists numerous competencies often identified with Instructional Development (ID). Some you may be familiar with; others you may not. Please look at each competency area and place an X in the box representing the most appropriate response. Note that there are 3 separate columns in which a response is needed. Thank you for your cooperation.

	Feel Competent		Importance of Competency in Your Role			Frequency of Use of Competency		
	Yes	No	Very Important	Important	Not Very Important	Often	Occasionally	Infrequently
ID Competency								
Conduct needs assessment								
Conduct learner analysis								
Develop behavioral objectives								
Conduct environment analysis								
Sequence learner objectives								
Sequence content								

Pool Competency

Importance of Competency in Your Role

Frequency of Use of Competency

	Yes	No	Very Important	Important	Not Very Important	Often	Occasionally	Hardly Ever
Determine appropriate resources								
Apply learning theories								
Evaluate instructional content								
Revise instructional content								
Create instructional packages/units								
Conduct workshops/in-service								
Communicate effectively								170
Consult with individuals re instructional needs/problems								

Feel competent

Importance of
Competency in
Your Role

Frequency of
Use of
Competency

	Yes	No	Very Important	Important	Not Very Important	Often	Occasionally	Hardly Ever
Consult with groups re instructional needs/problems								
Promote instructional development to school staff								
Sequence learner activities								

DIRECTIONS FOR INTERVIEW

1. This interview should take about one hour.
2. Page 1, where demographic information is recorded, contains an introductory statement giving the purpose of the study. Read this to interviewees to familiarize them with the study.
3. Interview pages are formatted with questions on the left and possible answers on the right. Answers differing from the possible answer should be written under the question.
4. Questions 1 and 2 involve definitions. Give the definition sheet to interviewees and ask them to read it, then ask the questions. Take the definition sheet back when the question is finished.
5. Questions should be read once. If asked to repeat the question, repeat once only then proceed to the next question.
6. Some questions have prompts which should be read only if the interviewee needs clarification of the question. Do not attempt to explain the question or prompt further, just proceed to the next question.
7. Some questions have a "if no, go to ---" instruction. If the answer is "No", or if the interviewee cannot answer the question, go to the question as directed.
8. Upon completion express thanks for their assistance.
9. Return questionnaires to:

Dr. Mary Kennedy
Division of Learning Resources

Department of Education
Memorial University of Newfoundland
St. John's, Newfoundland
A1B 3X8

NATURE OF THE STUDY

This questionnaire is part of a provincial research study on the diffusion of instructional development knowledge, competency, and use throughout the school system. The study is currently focusing on primary and elementary classroom teachers and teacher-librarians. Directed at teacher-librarians, this questionnaire will establish the levels of their knowledge, their use in the performance of their roles, and the sources of their instructional development knowledge and competency.

FUNCTIONAL AND CONCEPTUAL
INSTRUCTIONAL DEVELOPMENT
DESCRIPTIONS

(Page 2: Questions 2-6)

Functional Instructional Development

The instructional developer follows the steps outlined in an instructional development model to systematically design instructional units, modules or materials.

Conceptual Instructional Development

The instructional developer applies theories of learning and theories of instruction to identify teaching and learning problems. In applying theories he/she may at times perform functional tasks.

INSTRUCTIONAL DEVELOPMENT DEFINITIONS

(Page 2: Question 1)

- A. A process for systematically designing, developing, implementing, and evaluating instruction.
- B. An application of the systems approach to coordinate all aspects of a problem toward the achievement of specific objectives.
- C. A heuristic approach to the development of instruction
- D. The development of instruction from the total systems perspective rather than from the discrete components of that system.
- E. A systematic process of translating relevant goals into effective learning activities.

(Page 4: Question 12)

If you think of the curriculum as going through three different stages,

1. curriculum determination (deciding what subject matter to include)
2. curriculum development
3. curriculum implementation (the teacher interprets the curriculum by doing classroom instruction),

where does instructional development fit into this scheme?

This questionnaire is part of a provincial research study on the diffusion of instructional development knowledge, competency, and use throughout the school system. The study is currently focusing on primary and elementary classroom teachers and teacher-librarians. Directed at teacher-librarians, this questionnaire will establish the levels of their knowledge of, their use in the performance of their roles of, and the sources of instructional development knowledge and competency.

DEMOGRAPHICS

This initial section deals with demographic information.

Circle or enter appropriate responses

- | | | | | | | | | |
|--|-----------|-------|---|---|-----------|---|---|------|
| 1. Years of university training | 1 | 2 | 3 | 4 | 5 | 6 | 7 | more |
| 2. Program of university studies | P | | E | | | H | | |
| 3. Degrees obtained | _____ | | | | | | | |
| 4. If M. Ed., what area | _____ | | | | | | | |
| 5. Learning Resources Diploma | Yes | | | | No | | | |
| 6. Completed L6521
(Instructional Development) | Yes | | | | No | | | |
| 7. Completed other courses with
instructional development content | Specify | _____ | | | | | | |
| 8. Years experience as classroom teacher | _____ | | | | | | | |
| 9. Years teacher librarian experience | _____ | | | | | | | |
| 10. Teacher librarian status | Full time | | | | Part time | | | |

- | | |
|--|-------------------------|
| 1. Here are some views of instructional development which I will read to you. Please tell me whether you agree or disagree with them. Ready? | 1. Circle answers below |
| A. A process for systematically designing, developing, implementing, and evaluating instruction. | Agree Disagree |
| B. An application of the systems approach to coordinate all aspects of a problem toward the achievement of specific objectives. | Agree Disagree |
| C. A heuristic approach to the development of instruction. | Agree Disagree |
| D. The development of instruction from the total systems perspective rather than from the discrete components of that system. | Agree Disagree |
| E. A systematic process of translating relevant goals into effective learning activities. | Agree Disagree |

INSTRUCTIONAL DEVELOPMENT APPROACHES

Teacher-librarians can practice at various levels along a continuum from being a custodian of books, to teaching library skills in isolation from the classroom teacher, to planning and working cooperatively with the classroom teacher in the preparation of instructional units or modules.

Instructional development also can be practised along a continuum from following closely a particular model, to make instructional materials, to using systems theory to solve instructional problems.

Here are two instructional development approaches representing the extremes of instructional development practise. Read them and I'll ask you some questions.

Functional Instructional Development

The instructional developer follows the steps outlined in an instructional development model to systematically design instructional units, modules or materials.

Conceptual Instructional Development

The instructional developer applies theories of learning and theories of instruction to identify teaching and learning problems. In applying theories he/she may also perform functional tasks.

- | | |
|---|-------------------------------|
| 2. Of these two approaches, functional and conceptual, which do you feel describes your feelings about instructional development? | 2. Functional Conceptual |
| 3. Which approach do you use in the development of instructional packages? | 3. Functional Conceptual |

4. Why do you feel you use that particular approach?

4.

179

5. Have you completed L6521?

5.

Yes

No

PROMPT: The graduate course in instructional development at Memorial University.
(If no, go to 7)

6. Which approach do you feel L6521 suggests?

6.

Functional

Conceptual

7. What do you think is meant by the term "instructional development"?
(If no answer, go to 9)

7.

A systematic procedure for solving instructional problems

8. Where have you learned about instructional development?

8.

Checklist:

University
In-service
Conferences
Professional literature
On the job

9. Instructional development is based on a number of underlying theories. Can you name some of these theory bases?

9.

Checklist:

Learning theory
Instructional theory
Systems theory
Communication theory
Educational psychological theory

10. What do you perceive to be the difference between curriculum development and instructional development?

10. Curriculum Development 180
- philosophy
- big goals
- subject matter thrust

Instructional Development
- psychology
- specific objectives
- learning activity thrust

11. What is the relationship of instructional development to educational technology?

11. Substot, theory-based application .

12. If you think of the curriculum as going through three different stages,
1. Curriculum determination (deciding what subject matter to include)
2. Curriculum development
3. Curriculum implementation (the teacher interprets the curriculum by doing classroom instruction),
where does instructional development fit into this scheme?

12. Circle answer below

1
2
3

13. Are you familiar with the term "needs assessment"?
(If no, go to 18.)

13. Yes No

14. What do you think is meant by the term "needs assessment"?

14. A way to describe instructional problems.

15. If someone asked you to conduct a needs assessment, would you know how to go about it?
(if no, go to 17)

15. Yes No

16. How would you go about conducting a needs assessment?

16. a. Use student results, grades, achievement tests to see if objectives are met.
b. Re-examine objectives, instruction, tests to see if they meet curriculum.
c. examine curriculum, goals and objectives.

17. Do you consider needs assessment to be problem oriented or solution oriented?

PROMPT: Does it focus on identifying an instructional problem or on choosing a solution.

17. Problem oriented

18. Are you familiar with the term "learner analysis"?
(If no, go to 25)

18. Yes No

19. What do you think is meant by the term "learner analysis"?

19. Analysing the learners

20. If someone asked you to conduct a learner analysis, would you know how to go about it?
(If no, go to 22)

20. Yes No

21. Describe how you would go about it?

21.

22. I'm going to name some characteristics of learners, could you indicate by yes or no which are important in doing a learner analysis? Ready?

- socio-economic
- reading ability
- attention span
- prerequisite knowledge
- prerequisite skills
- age
- religion
- sex
- general ability level
- special aptitudes
- writing abilities
- emotional maturity
- parent's employment

22. Circle answers below

- | | |
|-----|----|
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |
| Yes | No |

23. Are you familiar with learning theories?
(If no go to 25)

23. Yes No

24. Which learning theories would you apply in doing a learner analysis?

24. Ausubel's advance organizer
Piaget's developmental theory
Bruner's discovery learning
Other (list)

PROMPT: Learning theories are often identified by the psychologists who developed them, for example Skinner's reinforcement theory.

25. What do you think is meant by the term "behavioural objectives"?

25. What you want the learners to accomplish.

26. If someone asked you to develop behavioural objectives would you be able to do so?
(If no go to 28)

26. Yes No

27. Please name the three main parts of a behavioural objective?

27. Checklist:
1. Conditions or givens
2. Verb
3. Standard or measure

28. There is more to behavioural objectives than simply writing them. Objectives should reflect various levels of knowledge and skills. How do you ensure that your objectives cover these various levels?

PROMPT: Do you know of any system for classifying or sequencing objectives?

29. Taxonomy - 3 domains

cognitive

psychomotor

affective

29. Are you familiar with objective hierarchies, such as those developed by Bloom and Gagne?
(If no, go to 31)

29. Yes No

30. What can you tell me about either of these?

30. Bloom's three domains
Gagne's conditions of learning

31. There are various opinions about use of behavioural objectives, some very positive some very negative. What is the most concern expressed about the behavioural objective movement?

31. The objectives focus only on low level learning

32. What do you think is meant by the term "environmental analysis"?

32. Analysis of the setting

33. Which elements of the instructional environment would be important to include in an environmental analysis?

PROMPT: Analysing instructional setting where the instruction is going to take place.

33. Checklist:

Human resources

Materials

Non-human resources

Expertise of personnel

Size and location of space

Noise level

Time

Cost

34. What do you think is meant by the term "subject matter structure"?

34. The way the subject matter is organized ¹⁸⁴

35. Are you familiar with the terms "task analysis" and "concept analysis"? (If no go to 37)

35. Yes No

36. How would you explain task analysis?

36. Map of essential skills and knowledge needed by the learner

How would you explain concept analysis?

Map of concepts needed by the learner

37. Could you describe the function of entry level behaviour in sequencing instructional content?

37. Establishes beginning steps in the instructional sequence

PROMPT: The term "entry level behaviour" refers to concepts and skills already acquired by the learner.

38. When selecting learning activities, what do you use as a basis for selection?

38. Objectives

39. If you integrate the teacher's learning activities and the learning skills continuum of the school, what is the logical outcome?

39. Integration across the curriculum

40. Which patterns do you use in sequencing your learning activities?

PROMPT: Easy to difficult

41. Which tools are available to aid you in the sequencing of learner activities?

42. What do you use as the basis for selection of instructional resources?

PROMPT: On what do you base selection decisions?

43. What do you think is meant by the term "selection aids"?

44. Which selection aids are you familiar with?

45. How do you determine the appropriateness of resources?

PROMPT: Anything else?

40. Checklist:

Temporal order (order in which the events occur in the unit)
Familiarity of events - from the known to the unknown
Frequency of use
Prerequisite knowledge and skills

41. Checklist:

Textbooks
Teacher's guide
Skills continuum
Other (list)

42. Checklist:

Objectives
Other (list)

43. Professional materials to aid in the selection of appropriate resources

44. Checklist:

Wilson Library Bulletin
Books in print
School board list
Other (list)

45. Checklist:

Fit with objectives
Preview resources
Other (list)

46. What are the five key attributes of the various media which should be considered in the selection of resources?
46. Checklist:
Motion
Colour
Random access
Pacing
Sensory mode.
47. What things do you consider when selecting or determining appropriate teaching strategies?
47. Objectives and learner analysis
48. Do you consider any one teaching strategy to be superior to others?
(If no, go to 50)
48. Yes No
49. Which one?
49. List
50. Can you name some teaching strategies you are familiar with?
50. Checklist:
Lectures
Discussion
Demonstration
Independent study
Small groups
Displays
Research projects
Textbook
Experiment
Simulation
Question and Answer
Other (list)
51. What do you think is meant by the term "evaluation"?
51. Collection and use of information to make decisions about instructional programs

52. What is usually used as the basis for the evaluation of instructional programs, modules, or units?

52. Objectives

PROMPT: What is used to indicate that outcomes are desirable?

53. If there are no written objectives, could instructional programs, modules, or units be evaluated?
(If no, go to 55).

53. Yes No

54. How?

54. Checklist:

Measure something else, e.g.,
evaluator establishes program
objectives; or,
audience concerns and issues;
or,
Other (list)

55. What do you think is meant by the term "criterion-referenced testing"?

55. A means of determining how
well the learner has achieved in
relation to specific objectives

56. In evaluating an instructional program, module or unit, which components should be examined?

PROMPT: Objectives, learners, content?

56. Checklist:

Everything:
objectives
learners
content
teaching strategies
activities
resources
evaluation

57. In developing instructional units or modules, when is the best time to develop the instructional tests?

PROMPT: Before, during, or after the units

57. Before instruction begins

58. How would you make use of the feedback you receive from evaluating your instruction?

58. To revise instruction

188

59. Do you know of any "planning guides" which could be used to create instructional units?

59. Checklist:
Fuel for Change
Other (list)

60. What do you use as the basis for the creation of instructional units?

60. All aspects from objectives to formative evaluation

61. Are the development of instructional units and the doing of instructional development synonymous?
(If no, go to 62)

61. Yes No

62. How do they differ?

62.

63. In designing and conducting in-service education versus classroom instruction, what is the most important consideration?

63. The adult learner or learner analysis

PROMPT: Which component of the instructional development process would have the greatest impact?

64. From an instructional design perspective, could you name three essential components of in-service workshops?

64. Checklist:
- Demonstration
 - Time for practise
 - Time to view and interact with the material
 - Other (list)

65. What would you consider to be important communication principles in establishing a good working relationship with teachers?

65. Checklist:
- Empathy
 - Listening skills
 - Organizing skills
 - Acceptance
 - Flexibility

66. What do you understand to be the relationship between instructional development and effective communication?

PROMPT: Which facets of the role of instructional developer are we referring to when we emphasize communication skills?

66. Consultancy

67. Can you name 3 essential elements of consultancy?

- 67.
1. Expertise in a given field
 2. Interpersonal communication expertise
 3. Problem-solving and creative thinking expertise



