INFORMATION/WORD PROCESSING INSTRUCTION

IN

SELECTED CANADIAN SECONDARY PUBLIC SCHOOLS

BY

© EVA BROWN

B.Ed., U. of M., 1980

A THESIS

Submitted to
The University of Manitoba
in partial fulfillment of the requirements
for the degree of

MASTER OF EDUCATION

Department of Mathematics and Natural Sciences

1986

ISBN 0-315-33967-5

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ACKNOWLEDGMENTS

The writer gratefully acknowledges the encouragement and guidance provided her during the period of study by Dr. George H. J. Porozny, Major Advisor and Thesis Committee Chairman.

Special gratitude is expressed to Miss Isabella Dryden for her valuable assistance as Interim Advisor and for serving on the writer's committee.

Special thanks is extended to the other members of the writer's committee, Dr. Orest Capp and Dr. Bruce Sealey for their assistance, suggestions, and advice.

The writer also wishes to thank the pilot committee for testing the questionnaire instrument and offering valuable suggestions and advice.

Appreciation is expressed to all business education consultants, university business teacher education heads, superintendents, principals and business directors who participated in this study with information and to business educators who participated as respondents.

Finally, the writer wishes to thank her husband, Russel, for his support and encouragement during the period of the study, whose understanding has made this study a reality.

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ABSTRACT

Statement of the Problem

The objective of this study was to investigate the development and current status of information/word processing instruction at the secondary level in selected Canadian public schools and to suggest changes to improve business education instruction.

Procedures

Respondents to the questionnaire instrument were business educators from the ten Canadian provinces. Letters were sent to university business teacher educators, business education consultants, superintendents, principals, business directors, and business educators teaching or otherwise involved in information/word processing instruction.

Three hundred eighty-two business educators were surveyed and three hundred seventeen (83%) respondents returned questionnaires.

Letters to university business educators also requested copies of the current business teacher education course outlines. Letters to business education consultants requested copies of secondary business education curriculum outlines which included information/word processing. This information was used in the review of related literature.

Findings and Conclusions

Hardware/Equipment

Microcomputers were used by the majority of business educators teaching information/word processing. Students enrolled in information/word processing programs received only a minimum (if any) exposure to dedicated word processing hardware/equipment.

Curriculum

Information/word processing was taught as a component of other business education subjects in all provinces. A few schools taught information/word processing as a separate course or unit/module in other business education subjects.

Prerequisite Skills/Courses and Adequacy of Training of Secondary Level Graduates

Most business educators required students to have a knowledge of typewriting before studying information/word processing. The majority of secondary level graduate students were inadequately trained for job entry in information/word processing. This occurred because information/word processing is a new area in business education and most students received only a minimum of instruction about information/word processing as part of their other business education subjects.

Business Teacher Education

Business educators obtained their knowledge of information/word processing primarily through ways other than formal courses--self study, in-services, workshops, conferences, and reading current information. The majority of business educators were considered inadequately trained to teach information/word processing because this is a new field in business education. Information/word processing is a fast changing field making it difficult for business educators to meet the challenges of automation. Business educators, however, are working hard to meet these challenges.

CHAPTER I

INTRODUCTION

Word processing, since the formal adoption of the term in 1965, has become prominent in business and industry. Technology changes so quickly that business/industry is faced with the difficult task of meeting the challenges of automation.

The challenges faced by business educators are similar to those of businesses but perhaps more difficult. Business educators must determine what business needs and wants and then project into the future to achieve the goal of educating students for job entry into the offices of tomorrow.

> In order to prepare qualified personnel to function effectively in meeting the communication needs of business, business educators must have from the business community current information and projections for the future. Without such information the likelihood is that office education teachers will continue to prepare students for "the office that was" rather than for the offices that are and that will be (National Study, Delta Pi Epsilon, p. 1).

A statement by the Policies Commission for Business and Economic Education issued in 1983 indicates that word processing instruction is necessary in the business education curriculum and that word processing concepts and

applications should be integrated into existing business education courses. The Commission further believes that an introductory course or a progressive series of courses should be offered to provide for occupational preparation (FORUM, Vol. 38, No. 1, October, 1983, p. 12).

Statement of the Problem

This study investigated the development and current status of information/word processing education at the secondary level in selected Canadian public schools.

Purpose of the Study

The purpose of this study was to examine the development and current status of information/word processing education at the secondary level in selected Canadian public schools and to suggest changes to improve business education instruction.

This study surveyed business educators across Canada who were involved in teaching business education.

This study researched four aspects of information/word processing instruction.

1. The type of hardware/equipment utilized in teaching information/word processing was identified by this study. If hardware/equipment was not used this study researched whether the theory/concepts of information/word processing were taught and how they were taught.

2. This study examined the curriculum of information/word processing at the secondary level in Canadian public schools, whether information/word processing was offered as a separate course or integrated into another course such as typewriting.

3. Since one of the objectives of business is to prepare students for entry level and advancement in jobs within business/industry this study examined the adequacy of training for job entry for current graduating secondary level students.

4. Business teacher education in information/word processing was of great concern to this study. This study identified the ways in which business education teachers obtained training to instruct information/word processing. This study also asked respondents to identify ways to improve the training of business educators in information/word processing.

Need for the Study

A growing challenge faced by business firms is an unprecedented increase in the amount of paperwork generated by communication needs. With this increase in paper volume has come the realization that the quality and effectiveness of business communication have decreased, while communication operating expenses have continued to increase (National Study, Delta Pi Epsilon, p. 1). This challenge urges business educators to examine the business education program at the secondary level in order to improve business education.

According to the Delta Pi Epsilon National Study on word processing there is a need to examine the teaching of information/word processing to develop new curriculum materials built around the realities of the current business office and incorporating objectives based upon the word processing competencies needed (p. 1).

Improving information/word processing instruction should include an examination of the type of hardware/equipment that schools are using in the teaching of information/word processing. Business educators must provide students with information/word processing concepts and practices using equipment which is comparable to the equipment being used in business and industry so that students can easily transfer their knowledge gained in school to an employment environment.

> To meet the challenges and opportunities of the office of the future, office personnel will have to have a good understanding of data processing, communications technology, systems and procedures, and typewriting basics. They will have to be able to work with different tools, the computer, and the stand-alone video display units (Jewell, p. 21).

This study responded to this need by surveying business educators asking them to identify the equipment being used in their classrooms.

Moody recommended that schools having office occupations curricula should maintain a close relationship with the local business community. There is a need to research what is taught in the curriculum and how it might be improved to provide future office workers with a strong background in information/word processing (p. 30). Automation is used in factories and now is revolutionizing the office scene. Business/industry is always searching for a more effective and efficient system of communication and with the rapidly increasing cost of office operation, word processing is the system which is contributing to this revolution. The task of business educators is to prepare students for the "real world of work." This study examined whether this task was being fulfilled by researching the content of business education curriculums. As stated earlier, the Policies Commission indicates that word processing instruction is necessary in the business education curriculum and that word processing concepts and applications should be integrated into existing business education courses. Is information/word processing education

preparing students in Canadian secondary business education programs for employment? Curriculum needs to be reviewed for evaluation. Does it meet the needs of business so that graduating students will be able to have the basic skills to succeed in word processing?

The Delta Pi Epsilon National Study indicated the role of the secretary was changing creating a need to identify whether or not the objective of business education to prepare students with skills needed for employment is being met (p. 14). This study examined the adequacy of student training and identified the prerequisite skills/courses needed by students to study information/word processing.

Upon implementation of updated information/word processing curriculums in business education departments business educators need to look at their qualifications. The majority of business educators are not familiar with the concept of word processing (Bearg, p.9). The need exists for business educators to update their knowledge of office automation. This study identified the education of business educators and methods of updating involved in obtaining their knowledge.

Limitations

1. This study was dependent on the information/word processing instructors who were identified by provincial business education consultants, departments of education, superintendents, business teacher education departments at universities and colleges, business directors, principals, and teachers.

2. This study was also limited by the information supplied by these respondents by completing the questionnaire instrument.

Delimitations

1. This study chose to research information/word processing practices in selected public high schools in Canada.

2. The participants were selected from the names provided by business education consultants, departments of education, superintendents, business teacher education departments at universities and colleges, business directors, principals, and teachers.

Definition of Terms

The following terms are defined as they were used in this study:

Administrative Secretary - a specialist who performs nontyping tasks, such as filing, processing the mail, handling telephone calls, and other supportive services for management.

Artificial Intelligence - a software area giving the capability of performing tasks relating to the human thought processes, such as the capability to reason, to make judgments, and to learn.

Business/Industry - employers; small to large companies or corporations.

Business Director - an educator responsible for business education programs in several schools.

Correspondence Secretary - a specialist who performs the typing, transcribing, and revising tasks for management.

Dedicated/Stand-Alone Word Processor - an operation or piece of equipment that is independent of another device, program, or system.

Disk - a flat circular plate with a magnetizable surface layer on which data can be stored by magnetic recording.

Hardware - physical equipment used in data processing, e.g. microcomputer.

Hybrid Computer - a computer using both analog and digital representation of data.

Information Processing - a collection of word and data processing equipment, procedures, software, data, and people that integrates the subsystems of the organization and provides information for the user.

Information/Word Processing - the fastest most efficient, and most economical method of expediting paper flow from its authorship to distribution of the printed word.

Integrated Office Systems - a network that incorporates all components of office operations--input, production, reproduction, records processing, and communication/ distribution.

Job-ready/Entry-level - a level of education indicating sufficient skills and training to be employed.

Line Printer - a device that prints a line of characters as a unit.

MC/ST - Magnetic card selectric typewriter records input on magnetic cards.

MT/ST - Magnetic tape selectric typewriter accelerates production by recording input on tape and editing and omitting in playback.

Magnetic/Electronic Typewriter - an electronic typewriter that records on magnetic media or in a memory unit. The recorded material can be played back with little human assistance at high rates of speed.

Magnetic Media - media such as cards, cassettes, disks, and belts which are used in text editors and dictation equipment to record and to store information.

Office Automation - the use of computers and related electronic equipment to help perform the tasks of the office--to store, process, retrieve, and transmit information.

Peripheral Equipment - any equipment distinct from the central processing unit that may provide the system with outside communication or additional facilities.

Policies Commission for Business and Economic Education - a group of business educators and representatives of professional business education organizations who set policies for business and economic education.

Secondary Level - grades 10, 11, and 12--in some provinces also grade 9 and grade 13; also known as "high school".

Software - computer programs, procedures, rules, and possibly associated documentation concerned with the operation of an automated processing system.

Theory/Concepts - the rules and procedures of information/word processing.

Traditional Secretary - also called a general-purpose or multifunctional secretary; this person performs all secretarial functions for one or more executives.

Word Processing System/Centre - the combination of specific procedures, methods, equipment, and people designed to accomplish transition and distribution of written, verbal, or recorded work in a centralized location in which word processing operations take place.

Organization of the Study

This study is divided into five chapters entitled: (1) Introduction, (2) Review of Related Literature, (3) Procedures, (4) Findings, and (5) Summary, Conclusions, and Recommendations.

Chapter I includes the introduction, statement of the problem, purpose of the study, need for the study, limitations, delimitations, and definition of terms.

Chapter II presents the history of information/word processing and includes a summarization of this history, a review of related studies as well as journals and articles, and reviews the information/word processing curriculums in secondary education in Canada.

Chapter III summarizes how the study was done. It describes the development of the study topic, summarizes the review of literature as pertaining to this study, selection of participants, and the research questionnaire instrument.

Chapter IV outlines the findings of this study.

Chapter V includes a summary of the findings of this study, as well as conclusions, recommendations, and implications for further research.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

This study undertook to research the development and current status of information/word processing education at the secondary level in Canadian public schools with implications for improvement of instruction. The investigator first reviewed the history of information/word processing and compiled a summary of this history. Then the researcher conducted an extensive review of literature using several methods of research. An ERIC search was carried out at the Education Library, The University of Manitoba. The Business Education Indexes and the Canadian Index were perused for relevant articles and theses. Journals, magazines and newspaper articles about business and technology were obtained from the AISP--Association of Information Systems as well as the library of the Department of Finance, Government of Manitoba, Information Systems Department. The researcher recorded points related to the study on a system of index cards which were coded and grouped according to topic. Letters were sent to colleagues in Canadian provinces requesting current curriculum guides.

Relevant literature identified in the ERIC search not available locally was obtained through interlibrary loan or purchased from University Microfilms International.

This chapter includes the following topics:

1. History of Information/Word Processing
2. Review of Related Studies/Literature
3. Information/Word Processing Curriculums in Secondary Education in Canada

History of Information/Word Processing

Words have been processed ever since paper was produced but the term "information/word processing" has been adopted more recently to describe a new method of improving the efficiency of business communications (Elliot, p. 6).

History records the documentation of words from about 3300 B.C. when clay tablets were used for this purpose. Previous to this time communication took place by use of pictures known as hieroglyphics. Petroglyphs, which was the method of carving images in rock, followed. Since the time when petroglyphs were used the human race has been searching for a more efficient method of communication.

By 400 B.C. people were communicating universally by means of one form or another of the alphabet (Duffy/Bentley, p. 2).

Vellum (skin of a calf), parchment (skin of goat or sheep) and later paper as well as quill pens and metal nib pens were commonday items by the 1400's for recording and processing words.

In the fifteenth century the first printing press was invented. In 1455 a Gothic Bible was produced on a printing press by Gutenberg of Mainz. William Caxton set up his first printing press in Westminster Abbey in 1476 (Duffy/Bentley, p. 4).

In 1713, an Englishman, Henry Mill obtained the first patent for a writing machine, a forerunner to the present typewriter. Other machines manufactured during the 1700's and 1800's were developed for specialized use by blind persons to help them write as well as by others for personal correspondence. These typewriters were therefore not designed for speed or commercial use (Duffy/Bentley, p. 4).

The first writing machine to be developed and known as a "typewriter" was designed by William A. Burt of Detroit, Michigan in 1829. In 1867, Christopher Sholes, the 52nd person known to design such a machine, developed the first commercially viable typewriter. His typewriter was the first machine to be faster in recording information than handwriting.

Sholes' keyboard was arranged in alphabetical order from left to right, top to bottom. This arrangement caused keys to jam. A keyboard known as the "QWERTY" system was designed to reduce keys jamming but this system which is most common today is still highly susceptible to typebar clashes and has been shown to be a left-handed machine in a right-handed world (West, p. 479). Suggestions for an improved keyboard have been made of which the most prominent is the Dvorak or Simplified keyboard which redistributes the work more appropriately to the various rows, between the hands, and among the fingers (West, p. 479).

Formal typewriting instruction began in 1881 when the YWCA offered a course in typewriting to eight women in New York. This led to the establishment of business schools. As a result of these typewriting classes over 60,000 women were using typewriters in organizations throughout the United States by 1886 (Duffy/Bentley, p. 6).

The automatic typewriter, produced in 1918, was a descendant of the first practical typewriter developed by Christopher Sholes in 1867. This equipment began to create the efficiency of word processing. However, it was not until 1932 that the automatic typewriter was manufactured by the American Automatic Typewriter Company in the form of the autotypist which was able to control the typewriter keys automatically.

In the late 1920's competing companies entered the market of automated typewriters which resulted in improved equipment including text-editing machines capable of editing existing documents.

In 1933, International Business Machines (IBM) produced the first commercial electric typewriter, a machine which was widely accepted and which eventually took over the market of manual typewriters by the 1960's and 1970's. IBM again made a big impact on the typewriter market when in 1961 it introduced the first selectric typewriter with printing produced from the use of a font or ball instead of keys.

The 1960's was a time of office revolution. Office automation is the most revolutionary development in the history of the office, surpassing even the genesis of the typewriter (Hirscheim, p. 3).

IBM introduced the magnetic tape selectric typewriter (MT/ST) in 1964 making a revolutionary change in technology. The MT/ST was a basic IBM "Selectric" Typewriter adapted to work along with a console and magnetic tapes to record all typed material. Each keystroke was electronically stored on magnetic tape as the key was pressed by the typist (Duffy/Bentley, p. 9). Then in 1969, IBM developed the magnetic card selectric typewriter (MC/ST), another improvement in technology allowing for greater efficiency in

business. Mag Card I technology did not introduce a drastic change from the MT/ST but the Mag Card II differed significantly. The recording principle remained similar to the use of magnetic tape but now errors could be corrected before the memory stored the keystrokes for future playback (p. 11). The development of visual display text-editing systems in the late 1960's was another phase in office efficiency.

Ulrich Steinhilper, an office products manager for IBM in Germany, developed the term "textverabetung" or text processing in 1965. Text processing was to direct all information to central areas to develop the concept of a unified office environment (Rosen/Fielden, p. 13).

In the mid-1960's IBM marketed a total office products package consisting of dictation equipment, electric typewriters, and the MT/ST. This package encompassed the total cycle of correspondence creation including origination, dictation, transcription, revision and production of final copy (Duffy/Bentley, pp. 10-11). The "word processing system" and the "word processing centre" subsequently evolved when studies indicated that centralized dictation systems and centralized transcription, along with the MT/ST, could substantially reduce the cost of producing typewritten material (Duffy/Bentley, p. 11).

When the concept of word processing was first introduced it was considered to be a typewriting task, however that concept has now revolved to denote a much larger cycle of activity encompassing the entire office system.

Word processing has developed through four phases as outlined below.

PHASE I--Mechanical text-editing typewriters

1964--MT/ST--magnetic tape selectric typewriter
--electric typewriter wired to a tape recorder

1969--MC/ST--magnetic card selectric typewriter
--then models Mag Cards I and II, Mag Card A

PHASE II--Communicating stand-alone text editors

1960's --display text editing machines CRT

1971 --IBM introduced Mag Card capable of communicating with other Mag Card units

PHASE III--Display text editors

1972 --communicating stand-alone text editors (hybrid)
--like phase I & II but includes communicating units

PHASE IV--Integration of DP/WP technology (total information system)

1980's --shared logic text editors (uses mini computers)
--timed shared text editors (uses large computers)
--personal computers--software used in DP and WP e.g. spreadsheet

(Quible/Johnson, Rosen/Fielden)

The history of information/word processing can be summarized as follows:

Year	Event
3300 B.C.	Clay tablets were used
1714 A.D.	Henry Mill--received the first patent for the writing machine
1867	Christopher Sholes--father of the typewriter; 52nd person to invent a typewriter; perfected the machine to be faster than handwriting; efficient model manufactured by E. Remington and Sons.
1878	Frank E. McGurrin--introduced touch typing
1881	YMCA offered course in typewriting to eight women; led to establishment of business schools.
1883	Horton--first Canadian to develop typewriter.
1878	Thomas A. Edison--first person to reproduce sound.
1881	Alexander Graham Bell, Charles Sumner Tainter and Chichester Bell--invented a machine on which sound could be commercially recorded and reproduced.
1933	International Business Machines first commercial electric typewriter.
1961	IBM--introduced first selectric typewriter printing by a font or ball.
1964	IBM--first magnetic tape selectric typewriter--MT/ST
1965	Ulrich Steinhilper, Germany--devised the word word processing idea known as textverabetung or word processing.
1969	IBM--introduction of magnetic card selectric typewriter--MC/ST

Year	Event
1970's	Display "text-editing" machines, with CRT --Cathode Ray Tube, Matrix Screen, Gas Plasma Screen, Electronic Video Screen --TV-like screen with attached keyboards and printing devices --By keyboarding, material held on screen Communicating stand-alone text-editors (hybrid) --Like CRT above but includes communicating units --Material keyboarded and revised in one location --Electronically transmitted to another location(s) --Beginning of "electronic mail" Integration of DP/WP technology --Shared-logic text-editors-- --uses mini-computers --shares computer storage, peripherals --has retrieval, manipulation, information capabilities --Time-shared text-editors-- --uses large computers --computer belongs to a service bureau; --client charged only for time actually used

Equipment used in early phases has been used in succeeding phases with additional, more advanced equipment being added in new phases. However, equipment used in phase one is becoming less used but equipment of phases two, three and four continue to be useful.

Undoubtedly, the equipment that will be introduced in phase 5 will make extensive use of artificial intelligence, which will likely make obsolete significant amounts of the equipment introduced during earlier phases (Quible/Johnson, p. 19).

Review of Related Studies

The studies reviewed which related to this study were categorized into four major topics.

1. Need To Teach Information/Word Processing

An examination of employment statistics reveals the importance of information/word processing education. The demand for qualified, well-trained word processing operators exceeds supply (Jewell, p. 13).

The 1984-85 Occupational Outlook Handbook in Manitoba indicates word processor operator employment prospects to 1990. This group includes keypunch operators, computer and peripheral equipment operators and word processor operators. While keypunch operators are expected to decline, the number of computer and word processor operators will increase about as fast as average. As computer systems expand, the need for data-entry operators and other peripheral equipment operators is expected to rise.

Susan Jewell, author of a study done on the identification of the word processing needs in Muskegon County and surrounding areas, quoted Sam Kalow, Manager of IBM's word processing system:

> I find it particularly ironic that this great demand exists at the same time we have a relatively high unemployment rate. This unemployment rate is even higher than the average among those people who should be filling these jobs--our younger citizens (p. 15).

The business education curriculum must meet the needs of business because without qualified personnel the advancement of word processing in business does not take place. Jewell noted some companies have experienced difficulty in establishing a word processing operation and in achieving maximum efficiency because of the growing shortage of qualified personnel (p. 13).

Many entry-level positions are available, and they offer both career opportunities and financial rewards (Bearg, p. 2). According to the Occupational Outlook Handbook in Manitoba the average annual earnings for a word processing operator was $12,565.

Melody Johnson, senior consultant of a market and information research consulting firm, anticipated by 1984 a shortage of personnel to meet word processing requirements for employees (National Study, Delta Pi Epsilon, p. 24). The task of business educators is therefore clearly prescribed. If indeed the goal of business educators is to prepare students for the office of the "real world" then there need be no hesitation to teach information/word processing at the secondary level. A guide to principles of instruction for business educators appears in Appendix A.

Having viewed various studies presenting needs for the implementation of information/word processing in the secondary level curriculum the researcher then reviewed further literature to determine the extent to which students should be exposed to the subject to attain entry-level skills.

Word processing instruction may be incorporated into typewriting, clerical office practice, transcription or other courses (Stitt, August, 1977, p. 29).

Beebe, in his study to determine the adequacy of vendor provided training of word processing, outlined the components of an effective training program in word processing.

1. To maximize the user's understanding of word processing at all levels.
2. To obtain essential user involvement in implementing, supervising, and controlling word processing systems.
3. To increase the user's confidence, enthusiasm for, and utilization of word processing.
4. To provide an environment where users can communicate, question, and share their own valuable ideas and information (pp. 6-7).

Merton Powell conducted a study to determine competencies needed by entry-level employees working in firms where a word processing system was in operation (Allred, p. 25).

Powell concluded that:

1. All secretarial programs should include information and guidance on the word processing concept.

2. Training on the magnetic media typewriters in schools was not considered critical, but preparation for changing conditions and procedures was.

3. Greater emphasis should be given to teaching English grammar, spelling, proper attitudes towards work, ability to get along with others, and excellence in performing all basic secretarial skills (pp. 25-26).

Essential competencies for entry-level word processing secretaries were identified by Moody in a study of beginning word processing secretaries. Moody suggested that:

1. Word processing equipment training and knowledge of concepts are helpful to entry-level employees.

2. Word processing should be offered as a semester course when feasible and incorporated into existing classes as well.

3. Schools should consider placing some cooperative. students in word processing centers (Bearg, p. 10)

Moody's study revealed that 96 percent of the participants felt that equipment training prior to job entry would be either helpful or important. Further, the same percentage were of the opinion that such training in word processing skills and equipment should be offered at the high school level and integrated in the existing business education courses (Beebe, p. 7).

Research shows that the development of specific skills in students was not of primary importance to employers. In fact, Powell found that, although employers in word

processing systems did not expect students to be trained on magnetic-media typewriters, they did consider it critical that students be prepared to handle changing assignments and procedures (Kisor, p. 11).

Stitt maintains that it is almost impossible for business educators to educate students to a level of competence in a word processing content area (p. 24).

Jewell states that the emergence of automated equipment and word processing procedures has presented business educators with a new challenge of preparing students to function efficiently in a traditional office and in an automated office (pp. 9-10).

Therefore, it may be reasonable to conclude that all students need to have a basic understanding of word processing concepts and vocabulary to be able to adapt to any given situation.

2. Information/Word Processing Employee Requirements

In order to prepare qualified personnel to function effectively in meeting the communication needs of business, business educators must receive from the business community current information and projections for the future. Without such information office education teachers will continue to prepare students for "the office that was" rather than for the offices that are and that will be (National Study, Delta Pi Epsilon, p. 1).

The Policies Commission for Business and Economic Education suggests that secondary level instruction information processing should include an introduction to the concepts of information processing and its effects upon offices, jobs, and skills, Secondary level instruction should include emphasis on language and computational skills, computer literacy, specialized equipment operations, and interpersonal relationships.

The Commission recommends one of three methods of instruction which could include but not be limited to the following:

1. The integration of information processing--either for personal or vocational uses--within existing courses.

2. A course providing introduction to information processing concepts.

3. A full curriculum model in which a progressive series of information processing courses is available, including a capstone unit (Fairchild, p. 35).

Jewell's study indicated three factors why students are not ready for beginning jobs.

1. Training in schools, in general, does not match the requirements of the job market.

2. Students are not taught the group approach to work.

3. Students' lack of basics as English and mathematics, limits their usefulness and their potential for growth, even though they learn to operate machines (p. 15).

This study further researched literature to determine the competencies needed by students to become entry-level employees.

In a study done by Hildegarde Bearg for the development of a high school word processing course employers surveyed stated that a high school education was the minimum requirement for job entry (p. 20). Another question in the same study asked respondents if new employees required previous word processing experience--almost 95 percent responded "no" (Bearg, p. 21). However, when respondents were asked as to what skills employees entering business required, all of them stated typing skills were mandatory (Bearg, p. 21).

Employers are looking for employees with "well-rounded" skills--the ability to undertake many situations and tasks. The student needs an understanding of work flow as well as general knowledge about business and how it works (Stitt, 1977, p. 24). It is becoming more and more difficult to find secretaries with even basic spelling, grammar and punctuation skills (Jewell, p. 14).

A Delta Pi Epsilon report established that word processing operators themselves also felt that they lacked a specialized vocabulary and that entry-level operators need more training in word processing equipment (Bearg, p. 12).

Hulbert cited several other qualifications for employment. The most important was the ability to follow instructions followed by rapid, accurate typing, expert

proofreading, understanding formatting, and good English skills. Finally he listed the qualification of being highly motivated (Bearg, p. 12).

The National Study of Word Processing Installations In Selected Business Organizations published by Delta Pi Epsilon cited a study by P.G. Moody on the identification of entry-level competencies of word processing secretaries. Moody surveyed secretaries, supervisors, and principals. When the secretaries were asked about typewriting competencies, more than 50 percent rated it to be the responsibility of the school to teach keyboarding, revising, and playing back documents on magnetic media equipment. Also about one-half of the secretaries were of the opinion that ability to operate the magnetic tape selectric typewriter and the magnetic card selectric typewriter were important and that the school was responsible for training students to use them (National Study, Delta Pi Epsilon, p. 29).

Jewell stated in her study that office personnel will have to have a good understanding of data processing, communications technology, systems and procedures, and typewriting basics. She also says students will have to be able to work with different tools, the computer, and the stand-alone video display units (Jewell, p. 21). Three other studies reviewed listed specific qualifications needed by employees for word processing positions. The first study, done in 1978 by Echternacht and Lang indicated:

1. Fast, accurate typing skills.
2. Being machine oriented.
3. Being able to stay at one work station for extended periods.
4. Concentration ability despite noise.
5. Capable of working under pressure to meet deadlines.
6. Common sense in thinking through and solving problems.
7. Capable of transcribing from handwritten or dictated materials.
8. Capable of dealing with quotas and of having work measured.
9. Proofreading skills.
10. Formatting skills.
11. Possess verbal skills, including vocabulary, spelling, grammar, and punctuation.
12. Be a good team worker.

The second study done by the Illinois Office of Education categorized skills into seven areas. These skills were derived by an employment needs survey developing a Word Processing Guide. They were:

1. Concepts, processes, and careers in word processing.
2. Verbal communication.
3. Written communications.
4. Equipment related skills.
5. Planning, organizing, decision-making skills.
6. Supervision skills.
7. Business attitudes/personal development.

Powell's study was specific in identifying qualifications for secretaries in word processing.

1. Oral communication.
2. Ability to proofread.
3. Knowledge of grammar.
4. Typing accuracy and speed.
5. Numerical typing.
6. Getting work done on time.
7. Working under pressure.
8. Working with interruptions.

Powell also went on to identify secondary qualifications sought for in employees of word processing by employers.

1. Logging information.
2. Setting priorities.
3. Management of time.
4. Work station management.
5. Machine transcription.
6. Systems analysis.
7. Flow of work.
8. Scheduling.

The most common elements found in all studies of skills needed by word processing employees were the need for good proofreading and editing skills and creativity in the use of machines. Several surveys also determined personality traits and attitudes to rank highly on the list of qualifications (Bearg, p. 23).

3. Information/Word Processing Curriculum

The business education program at the secondary level in Canadian schools needs to be redesigned using careful assessment, accurate data and planning (Jewell, p. 18). Business educators need to form a task force and conduct a needs assessment to determine curriculum guidelines. Actual job requirements should be the basis for guidelines in developing a course of study for word processing programs (Kisor, p. 18).

Since the concept of information/word processing was first introduced, business educators have raised many questions as to what to teach about the information/word processing concept and how to provide training relevant to the needs of business (Jewell, p. 18).

Business educators still have the same goal in mind today as they did twenty years ago--to prepare students to be job ready--but the methods and procedures used today are different because of the rapid changes which have taken place in the office environment during the past twenty years (Kisor, p. 5). Business and industry are looking to education to provide skilled people to operate the equipment, so that they do not need to spend valuable time and money in training (Bearg, p. 2).

While it is of utmost importance for business educators to keep abreast of changes in business in order to keep teaching methods and techniques current, it is sometimes difficult to do so. Joanne Kisor cited the following reasons in her study why business educators are "behind the times" (Kisor, pp. 6-7).

1. Educators work in schools, not offices. It is difficult to keep abreast of changes in an environment in which you do not work.

2. Schools do not have the money to enable educators to become trained on new equipment or to buy or lease new equipment.

3. The research and literature written about word processing has been limited both in breadth and depth. It has not given educators a clear idea of what is going on in the word processing field.

4. The rapidity and diversity of technological advancements in the word processing field creates a fluctuating body of knowledge that is difficult to assimilate both for business and education personnel.

Educators can utilize these guidelines to prepare a course of study appropriate for the preparation of high school business and office education programs. Kisor's suggestions are:

1. Develop programs to help students plan career goals.
2. Offer new courses which reflect employment needs and job potential of students.
3. Concentrate on problem-solving activities, analyzing work, and planning a better way to do work.
4. Develop greater keyboarding skills, emphasize speed.
5. Strengthen oral and written communication skills.
6. Develop keyboarding skills from handwritten and rough-draft copy.
7. Insist on higher standards. Students must learn that they are responsible for both quality and quantity.
8. Teach the basics of the use of the computer.
9. Develop high skill in machine transcription.
10. Introduce students to the notion of job commitment and a fair day's work for a fair day's pay.
11. Strengthen 3 R's, particularly writing and reading.

Some of the changes suggested by a review of the related literature for an information/word processing course of study include (Kisor, p. 17):

1. New technique emphasis in typewriting.
2. More machine transcription practice.
3. More emphasis on writing skills and a wider range of writing skills.
4. Office simulation or work experience, providing greater understanding of information/word processing systems and procedures.
5. Development of programs to help students plan career goals.

Powell's study indicated a common core of subject matter should be included for all secondary students . . . all secretarial programs should include information and guidance on information/word processing concepts, but training on magnetic-media typewriters in school was not considered essential. He also recommended that greater emphasis be given to English grammar, spelling, proper attitudes toward work, ability to get along with others, and excellence in all secretarial skills (Bearg, p. 9).

Ruth Anderson, in a study on word processing, stated the minimum curriculum should include a unit on information/word processing in other business courses such as office procedures. Teaching machine transcription to produce an acceptable quality and quantity of work is basic to preparing students for information/word processing employment (p. 13).

Bearg proposes changes in teaching typewriting, teaching dictation and composition along with machine transcription, basic English and grammar skills, and information/word processing terminology, concepts, and

history. She suggests field trips to information/word processing centers, demonstrations from equipment manufacturers, guest speakers, and films as means of providing the necessary information (p. 14).

Keyboarding skills and typing speed are more important than in the past. Although accuracy is still important, strikeover capabilities have also become important (Kisor, p. 16). Employers are willing to provide on-the-job information/word processing training in the use of word processing equipment if the employees have a background in the basic office skills and are prepared for changing assignments and procedures (Kisor, p. 16).

Word processing equipment is a very high cost item for schools. Hardware/equipment becomes obsolete very quickly leaving students to practice on outdated equipment. Education cannot afford to focus training on specific equipment.

Bearg's study revealed a list of skills, knowledges, and attitudes that schools on a limited budget should teach (p. 25):

1. English.
2. Typewriting--speed and accuracy.
3. Word processing--concepts and terminology.
4. Machine transcription--proofreading, editing, formatting.
5. Adaptability and willingness to work.
6. Productivity (getting the job done).
7. Human & public relations.

Kisor surveyed managers in her study who listed the following as "very important" skills necessary to enter an entry-level position in the word processing field (pp. 9-10):

1. Ability to proofread.
2. Knowledge of grammar.
3. Accuracy in typing.
4. Setting priorities on work.
5. Management of time.
6. Good business attitude.

Business educators often ask whether the skills they are teaching are still relevant. Powell's list of previously important traditional skills that are no longer considered critical included (Kisor, p. 10):

1. Filing.
2. Use of office machines.
3. Logging information.
4. Use of shorthand.
5. Shorthand transcription.
6. Mail handling.

4. Need For Teachers To Keep Updated In Their Training

Business educators need to be aware of the present and future office in order to be effective educators preparing effective and job-ready students. Rosanne Reiff, in a study on entry-level job qualifications and employee attitudes, indicated that the majority of business educators are not familiar with the concept of word processing.

Rita Kutie's study on an analysis of job dimensions of word processing secretaries and traditional secretaries, correlating the job dimensions with job satisfaction, indicated business educators should be aware of the changing nature of office work. Of the group that is familiar with the concept of word processing, most do not teach the skills per se; a small segment teaches one or more of the environmental concepts (Allred, p. 27).

There must be a careful assessment by business and office occupations teachers of changes which need to be made in the curriculum to keep pace with the business world. Word processing and office automation present a challenge to teachers to produce students who can function efficiently in the traditional office as well as adapt to new systems being implemented in the business offices currently. Whether we like it or not, change is inevitable (Bearg, p. 2).

William Baker's study indicated business educators face several problems in meeting the challenge of change (Bearg, pp. 12-13). Bearg identified four of these problems:

1. Learning about the technology can be difficult.
2. Adjusting established curricula presents problems.
3. Acquiring new technology introduces financial problems.
4. Teaching materials are limited during early years.

Bearg's study showed a consensus that business educators need to evaluate their programs to determine if the skills being developed are those needed on the job now and in the future (p. 15).

It is important that business educators are aware of the various types of word processing equipment in use today in order that an effort might be made to duplicate such equipment for instructional purposes (Jewell, p. 13).

Delta Pi Epsilon's National Study of word processing cited a study by Bragg comparing major task requirements of word processing/administrative support personnel. Bragg concluded that training word processing personnel on equipment seemed to be a function of on-the-job training. She recommended that business teachers provide instructional experiences and activities to acquaint students with word processing terminology, equipment, and tasks. She thought emphasis should be placed on interpersonal relations. Also, she believed that teachers should maintain close working relationships with managers, supervisors, and office workers involved in word processing (National Study, Delta Pi Epsilon, p. 31).

Information/Word Processing Curriculums in Education at the Secondary Level

Information/word processing curriculum outlines were received by the researcher from provincial business education consultants. (Some course outlines were in the experimental or pilot stages therefore subject to later revision). Those outlines which were being used at the secondary level in Canadian schools are summarized below.

Newfoundland reported not to have a separate information/word processing course in the public system. Students in this province were introduced to information/word processing equipment by having them work through the manual accompanying the equipment followed by practice from the typewriting textbook. An information/word processing pilot project was being introduced in some schools. Students wishing to receive intense information/word processing training enrolled in a vocational school upon completion of the high school program. The curriculum for the pilot project appears in Appendix B.

Nova Scotia and New Brunswick offered a unit on information/word processing which was intended to be integrated into other business education courses such as office procedures and typewriting. A small number of schools were teaching a separate course in information/word processing but most schools were integrating information/word processing concepts and applications into other courses. Most teachers of the advanced typewriting and office procedures courses were teaching information/word processing on an acquaintanceship level because of equipment constraints. The Nova Scotia curriculum outline for the information/word processing unit appears in Appendix D.

Prince Edward Island, Quebec, and Ontario were conducting information/word processing pilot projects using preliminary curriculum documentation. Some schools in these provinces were integrating information/word processing concepts and applications into other business education courses. Curriculum outlines for the information/word processing pilot projects appear in Appendices C, E, F respectively.

Manitoba included information/word processing in the curriculum as a component of the office procedures and data processing grade 12 courses, however it was also integrated into other business education courses such as typewriting in some schools. The information/word processing curriculum outline excerpts from office procedures and data processing 302 appear in Appendix G.

Saskatchewan did not include information/word processing in the curriculum, but a number of teachers were teaching it in typewriting and office procedures. Curriculum outline excerpts from the interim edition of the computer application and computer science guide appear in Appendix H.

Alberta ~~was teaching~~ included information/word processing as part of the intermediate and senior typewriting programs until the fall of 1984 at which time a separate ~~course~~ module in information/word processing was available.

The information/word processing module (module 5) from office procedures and the modules (modules 14 and 15) from optional business education appear in Appendix I.

British Columbia was teaching information/word processing as part of office procedures, grades 11 and 12 as well as part of business communications grade 12.

Following are the program objectives of the Jefferson College word processing program as they appeared in the Business Education FORUM (April, 1984, p. 17). The word processing program at Jefferson College in Hillsboro, Missouri, was one of the 1983 winners of U.S. Secretary of Education T. H. Bell's annual Secretary's Awards for Outstanding Vocational Educational Programs. The awards, which were established in 1981, are given every fall to one outstanding career program in each of the ten regions of the U.S. Department of Education (Mann, p. 16).

1. To present to students the broad concepts of word/information processing as these concepts relate to office functions.

2. To provide students with background information and realistic applications of the input, output, distrubtion, storage, and reprographics phases of word/information processing.

3. To define career paths, job functions, job descriptions, and skills required for emerging career paths in word/information processing.

4. To emphasize the necessity for development of professionalism and continual growth for students to obtain and develop successful careers in the office environment.

5. To assist students in developing entry-level skills with the potential for management positions in the word/information processing field.

This study reviewed a proposed course outline developed by Bearg in her study. Bearg listed and described the goals, specific objectives, outline of a course, topics, teaching procedures, equipment training and an evaluation plan. The course outline appears in Appendix J.

Summary

This chapter reviewed literature to establish guidelines to determine the development of information/word processing education at the secondary level in Canadian public schools. Literature reviewed was of both Canadian and United States origin adding a greater dimension of comparison in establishing a curriculum assessment of information/word processing education in Canada.

The guidelines used included establishing the need to teach business education as well as information/word processing, determining employee requirements in information/word processing in order to establish an adequate curriculum outline to prepare adequately trained graduates for job-entry. Finally, it was important to review the training of business educators in information/word processing to determine their readiness to adapt to change in the curriculum.

Nine major theses were reviewed as well as numerous articles and journals, and texts were used in the review of literature.

Curriculums from British Columbia and New Brunswick were not available therefore they do not appear in the appendices. Information was received about curriculum in these provinces from respondents and in British Columbia also from the business education consultant in the Vancouver region.

CHAPTER III

PROCEDURES

Introduction

The problem of this study was to identify the development and current status of information/word processing education at the secondary level in selected Canadian public schools.

The Development of the Study Topic

The selection of the study topic was determined by the researcher following much study and discussion with the researcher's professor and colleagues. Such study included university courses in word processing--both theory and hands-on experience. Theory topics involved a study of the history of word processing, hardware and software available, training of word processing operators, the future of word processing as well as other selected journal articles dealing with word processing. Courses involving hands-on experience utilized WordPro 4 as the word processing package on Commodore microcomputers.

Through study in word processing, the researcher developed a concern for word processing in education and expressed interest in pursuing additional studies in information/word processing. Upon consultation with Dr. Porozny, the study advisor, possible topics of research in information/word processing were developed and consent was granted to do further research and to prepare a proposal for a course of study.

A preliminary proposal was presented to Dr. Porozny and discussion developed a more precise topic. The proposal was revised and presented at a faculty graduate seminar in November, 1983. Faculty and graduate students from the University of Manitoba as well as representatives from the business and government sector attended and participated in the seminar. The participants at the seminar submitted written suggestions and recommendations to further define the topic and to state the problem.

Recommendations received at the seminar were considered and a revised proposal prepared in December, 1983. The proposal was presented to the full committee and accepted in March, 1984.

Selection of Participants

Letters were sent to sixteen universities across Canada offering business teacher education programs requesting course outlines and names of business teacher educators involved in teaching information/word processing. The Canadian Education Association Handbook (CEA) was used to locate addresses of universities known to offer business teacher education. Twelve universities still offered the program while four did not. This correspondence began in January, 1984. Follow-up letters were sent in February, 1984. Thank you letters were sent to all twelve responding universities for their participation. Letters to universities appear in Appendix K.

Letters were mailed to business education consultants in each Canadian province. Correspondence was initiated in February, 1984. Seventeen letters were sent. Thank you letters were sent to the sixteen consultants having replied to the researcher's request to obtain business education curriculums from each province as well as names of business educators involved in teaching information/word processing. Letters to business education consultants appear in Appendix L.

The Research Questionnaire Instrument

The research instrument--a preliminary questionnaire--was developed in February, 1984.

A pilot committee was selected to evaluate the questionnaire as well as to issue suggestions for clarification and refinement of the questionnaire. The committee consisted of five members, Joyce Hay, Lea Mansell, Bonnie Rigaux, Elsie Solar, and Norman Stilkowski, all experienced Manitoba business education teachers, enrolled in or having completed a masters program. All members of the pilot committee had also studied information/word processing/office automation at the Faculty of Education, The University of Manitoba. The preliminary questionnaire was sent to the pilot committee in March, 1984. Thank you letters were sent to all five members for their replies and participation in the pilot committee. Correspondence with the pilot committee appears in Appendix M. The feedback received from the pilot committee was discussed with Dr. Porozny and Miss Dryden, and suggestions made were used in the final instrument.

A final revised copy of the research questionnaire instrument was developed and reproduced for mailing to business educators across Canada. The questionnaire consisted of four pages divided into four sections. These sections were categorized by topic--equipment, curriculum, prerequisites required by students and adequacy of student

training, and business teacher education. The questionnaire was further divided into types of business educators--those currently teaching information/word processing and those not currently teaching information/word processing. Each section allowed for respondents to comment and state their opinion and concerns. All questionnaires were numbered and each business educator was given a corresponding number in order to identify the questionnaire by province. All names of business educators were kept confidential. A copy of the questionnaire instrument appears in Appendix N.

Letters were sent in April, 1984 to superintendents of school divisions to request additional names of business educators. Information regarding names and addresses of school divisions and superintendents was obtained from the CEA Handbook. Additional names of business educators were received from superintendents, principals of schools, and business directors. Some of these names were already on the researcher's list of business educators, however, some were new names. Letters appear in Appendix O.

A list of names and addresses of business educators was compiled using the information received from universities, business education consultants, superintendents, department heads, business directors, and principals. The names received were business educators who had or were currently teaching information/word processing or were involved in some aspect of information/word processing education.

Questionnaires were sent to business educators on the list compiled by the researcher. Initial mailing began in April, 1984. A stamped, self-addressed envelope was enclosed with the questionnaire along with a covering letter. A copy of the covering letter appears in Appendix P.

Questionnaires were mailed to business educators in May, 1984. One follow-up questionnaire, including a stamped, self-addressed envelope and letter, was sent to each business educator who had not returned the initial questionnaire. The deadline date for receipt of questionnaires was April, 1985. A total of three hundred eighty-two business educators were contacted by questionnaire as part of the survey. A total of three hundred seventeen questionnaires or eighty-three percent were completed and returned by business educators.

Upon receipt of each questionnaire, the researcher coded each form according to province in order to tabulate results by province.

A final letter of appreciation was sent to all university business teacher education departments, business education consultants, superintendents, department heads, business directors, and principals. Letters appear in Appendix Q.

CHAPTER IV

FINDINGS

Introduction

This chapter contains the responses received from business educators who participated in this study.

Responses to the questionnaire instrument established two categories of respondents--those currently teaching information/word processing and those not teaching information/word processing. The first group of respondents were asked to respond to the entire questionnaire while those who were not teaching information/word processing completed only the section on business teacher education.

The first section on the questionnaire instrument asked respondents about curriculum in information/word processing education.

The second section of questions on the questionnaire instrument asked about hardware/equipment and procedures of teaching information/word processing.

Section three asked respondents to comment on pre-requisites required by students and the adequacy of student training.

The fourth section asked respondents to comment about the education and knowledge of business educators in information/word processing.

Table 1 indicates that three hundred eighty-two questionnaires were sent and three hundred seventeen replies were received. The rate of return varied from 67% to 100% with an overall return of 83%. The researcher surveyed one hundred twenty-three (32% of all respondents) Manitoba business educators to place emphasis on Manitoba.

1. The first question asked participants, "Do you teach information/word processing?" Responses are summarized in Table 2.

Two hundred thirty-nine (75%) of the three hundred seventeen respondents did teach information/word processing. Nearly all Ontario respondents taught information/word processing--ninety-eight percent said "yes" they did while more than one-half of New Brunswick respondents (54%) and nearly one-half of Saskatchewan respondents (42%) said they did not teach information/word processing.

2. Respondents were asked, "In which subject(s) do you teach information/word processing?" Responses to this question are summarized in Table 3 which indicated that all provinces in Canada were teaching information/word processing to some extent whether by inclusion in an

TABLE 1

NUMBER OF CANADIAN SECONDARY BUSINESS EDUCATION TEACHERS WHO PARTICIPATED IN THIS STUDY

PROVINCE	QUESTIONNAIRES SENT	REPLIES RECEIVED	PER CENT RETURNED
Newfoundland (NF)	14	10	71
Prince Edward Island (PE)	11	11	100
Nova Scotia (NS)	27	24	89
New Brunswick (NB)	39	37	95
Quebec (PQ)	28	24	86
Ontario (ON)	77	54	70
Manitoba (MB)	123	108	88
Saskatchewan (SK)	14	12	86
Alberta (AB)	22	19	86
British Columbia (BC)	27	18	67
TOTAL	382	317	83

TABLE 2

SECONDARY BUSINESS EDUCATORS
TEACHING INFORMATION/
WORD PROCESSING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Were Teaching Info/W.P.	9	90	7	64	19	79	17	46	23	96	53	98	79	73	7	58	16	84	9	50	239	75
Were Not Teaching Info/W.P.	1	10	4	36	5	21	20	54	1	4	1	2	29	27	5	42	3	16	9	50	78	25
TOTAL	10	100	11	100	24	100	37	100	24	100	54	100	108	100	12	100	19	100	18	100	317	100

existing business subject (e.g. office procedures) or as a separate subject. Table 3 indicates that many business educators were following the route of integrating word processing concepts and equipment into their senior secretarial courses. Table 3 lists the identified business subjects where information/word processing was taught as a component. Two hundred respondents (44%) indicated information/word processing concepts were taught in office procedures courses. Another subject used to integrate information/word processing was typewriting--137 or 28%. Data processing and shorthand were two other subjects integrated with information/word processing.

Twenty-seven business educators indicated that they did teach information/word processing as a separate course or unit/module. These business educators were from the following provinces: Nova Scotia (2), New Brunswick (8), Quebec, (1), Ontario (11), Manitoba (3), Alberta (1), British Columbia (1).

TABLE 3

INFORMATION/WORD PROCESSING TAUGHT
AS A COMPONENT OF ANOTHER
BUSINESS SUBJECT

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Office Procedures	3	30	2	13	11	37	3	18	22	42	66	59	72	45	3	30	9	26	9	60	200	44
Typewriting	5	50	3	20	13	44	4	24	17	33	21	19	50	31	6	60	13	37	9	60	137	30
Data Processing	–	–	–	–	1	3	5	29	9	17	14	12	31	19	–	–	4	11	–	–	64	14
Shorthand	–	–	–	–	1	3	2	11	4	8	8	7	3	2	–	–	–	–	1	7	19	4
Computer Literacy	–	–	9	60	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9	2
Accounting	–	–	–	–	–	–	–	–	–	–	1	1	1	1	–	–	3	9	–	–	5	1
Computer Processing	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	1	–	–	4	1
Other*	2	20	1	7	4	13	3	18	–	–	2	2	4	2	1	10	2	6	–	–	19	4
TOTAL	10	100	15	100	30	100	17	100	52	100	112	100	161	100	10	100	35	100	15	100	457	100

*Other subjects in which information/word processing was a component were: Business Communication - 1, Business Computer Operator - 1, Business Computer Programming - 1, Business English - 1, Business Machines - 1, Business Math/Word Processing - 1, Clerk Typist - 2, Computer Applications - 1, Computer Awareness - 1, Computer Education and Office Technology - 3, Computer Science - 1, Exploration of Business - 1, Informatics - 1, Law - 1, Notetaking - 1, Office Management - 1

3. Respondents were asked, "What prerequisite skills do you expect students to have prior to enrolling in and studying information/word processing?"

Table 4 lists the subjects considered to be prerequisites by business educators for students in information/word processing.

More than three-quarters of the respondents (79%) considered typing to be a requirement for studying information/word processing. These business educators indicated that a minimum typing speed of 30 words per minute was necessary to attain adequate training in information/word processing and 45 words per minutes was preferable upon entering an information/word processing course.

Business educators indicated office procedures as a prerequisite skill prior to enrolling in and studying information/word processing, however, such educators indicated that office procedures could be either a prerequisite or co-requisite. Schools that offered two levels of office procedures--grades eleven and twelve--considered the grade eleven course as the prerequisite and the grade twelve course as the co-requisite to enrolment in information/word processing. Only 10% of the respondents considered English to be a prerequisite to studying information/word processing.

Business educators considered a business attitude to be important for students to study information/word processing. Business educators felt students preparing for the business world needed to have a business attitude--take pride in their work, cooperate with others, and be on time.

TABLE 4

STUDENT PREREQUISITE SKILLS/COURSES
REQUIRED FOR INFORMATION/
WORD PROCESSING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Typewriting	9	64	2	50	17	94	14	64	21	81	48	83	87	80	7	78	15	88	7	78	227	79
English	3	22	2	50	1	6	3	14	1	4	2	3	11	10	2	22	2	12	–	–	27	10
Office Procedures	–	–	–	–	–	–	1	4	4	15	3	5	2	2	–	–	–	–	2	22	12	4
Other*	2	14	–	–	–	–	4	18	–	–	5	9	9	8	–	–	–	–	–	–	20	7
TOTAL	14	100	4	100	18	100	22	100	26	100	58	100	109	100	9	100	17	100	9	100	286	100

*Accounting - 5, Communications - 5, Data Processing - 4, Computer Awareness - 4, Math - 1, Business Attitude - 1

4. Respondents were asked "In teaching information/word processing, do you teach theory/concepts and/or hands-on equipment/hardware?"

Table 5 indicates about four-fifths (79%) of the respondents who were teaching information/word processing were teaching theory/concepts. Table 6 indicates that nearly 100% of the respondents used a hands-on approach. Respondents generally responded "yes" to the question of teaching theory/concepts, the lowest percentage being Quebec (69%). Nearly all (98%) of the respondents replied positively to the question of using a hands-on approach. It would appear, therefore, from Table 6, that students enrolled in business education courses at the secondary level in Canada are receiving hands-on hardware/equipment training to some extent almost without exception.

Seventy-nine percent of business educators surveyed were teaching both theory/concepts and hands-on hardware/equipment.

5. Canadian secondary business education teachers were asked to respond to, "What type of equipment and how many of each do you use?" Respondents were asked to select from three groupings: dedicated/stand-alone word processor, microcomputer, and peripheral equipment.

Table 7 indicates the number of dedicated word processors and microcomputers used in Canadian secondary business education programs offering instruction in information/word processing. The information indicates that

fifteen percent of the equipment was dedicated word processing equipment while over three-quarters of the equipment used were microcomputers.

It appears that almost without exception provinces were using microcomputers in the majority of hands-on hardware/equipment training. The three more populous provinces--British Columbia, Ontario, and Quebec--seemingly had a greater percentage of dedicated word processing equipment. The reason for this might well be attributed to such provinces having larger schools due to greater population clusters thus being able to purchase more specialized equipment.

Quebec stated that over one-quarter (29%) of the equipment was dedicated while British Columbia indicated over one-third (39%) of the equipment as dedicated and Ontario reported that one-half (44%) of the equipment was dedicated word processing equipment.

Table 8 shows Ontario using a high percentage of dedicated word processors compared to other provinces--167 machines or 61% of the total hardware/equipment listed for Canada. Quebec used 39 dedicated word processors, Alberta used 32 and British Columbia used 23 dedicated word processors in the teaching of information/word processing. The two most frequently used types of dedicated word processors were AES and Micom while Burroughs and Olivetti were third.

TABLE 5

SECONDARY BUSINESS EDUCATORS INCORPORATING THEORY/CONCEPTS OF INFORMATION/WORD PROCESSING IN THEIR TEACHING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Did Teach Theory/Concepts	8	89	6	86	15	79	14	82	16	69	44	83	62	78	3	43	14	88	8	89	190	79
Did Not Teach Theory/Concepts	1	11	–	–	1	5	2	12	2	9	7	13	11	14	–	–	1	6	1	11	26	11
No Response	–	–	1	14	3	16	1	6	5	22	2	4	6	8	4	57	1	6	–	–	23	10
TOTAL	9	100	7	100	19	100	17	100	23	100	53	100	79	100	7	100	16	100	9	100	239	100

TABLE 6

SECONDARY BUSINESS TEACHERS WHO UTILIZE HANDS-ON HARDWARE/EQUIPMENT IN TEACHING INFORMATION/WORD PROCESSING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Did Teach Hands-On Hardware/Equipment	9	100	7	100	19	100	17	100	23	100	53	100	76	96	7	100	16	100	9	100	236	98
Did Not Teach Hands-On Hardware/Equipment	–	–	–	–	–	–	–	–	–	–	–	–	2	3	–	–	–	–	–	–	2	1
No Response	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	1	1
TOTAL	9	100	7	100	19	100	17	100	23	100	53	100	79	100	7	100	16	100	9	100	239	100

TABLE 7

NUMBER OF EQUIPMENT UTILIZED BY SECONDARY BUSINESS TEACHERS IN TEACHING INFORMATION/WORD PROCESSING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Microcomputers	21	96	63	99	128	98	292	100	94	71	209	56	358	98	40	100	241	88	36	61	1482	85
Dedicated Word Processors	1	4	1	1	3	2	–	–	38	29	167	44	7	2	–	–	32	12	23	39	272	15
TOTAL EQUIPMENT	22	100	64	100	131	100	292	100	132	100	376	100	365	100	40	100	273	100	59	100	1754	100

TABLE 8

DEDICATED WORD PROCESSING EQUIPMENT UTILIZED
IN THE TEACHING OF INFORMATION/
WORD PROCESSING

	NF	PE	NS	NB	PQ	ON	MB	SK	AB	BC	CANADA
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
AES			2		9	70			5	10	96
Micom						82					82
Burroughs					28	3					31
Olivetti					1	3			26	1	31
IBM Displaywriter		1				9				1	11
AB Dick							5		1	1	7
Xerox	1									5	6
Wang										5	5
Canon						3					3
Olympia			1				1				2
Zenith					1						1
TOTAL	1	1	3	–	39	167	6	–	32	23	272

Table 9 lists the four major makes/models of microcomputers being used in the teaching of information/word processing. Nearly two-thirds of the equipment (60%) were Commodore microcomputers while less than one-fifth (18%) of the equipment were Apple microcomputers. Eleven percent were equipment made by the Tandy Corporation with only 3% from IBM.

Prince Edward Island used exclusively Commodore microcomputers in the teaching of information/word processing with New Brunswick indicating 86% and Alberta reporting 84% of their microcomputers as Commodore. British Columbia indicated only 19% of their microcomputers were Commodore. The microcomputers identified by New Brunswick respondents were also all Commodore machines, although twenty-three machines were not specified as to make and model.

Saskatchewan respondents indicated the use of Apple microcomputers as the only hardware being used in the teaching of information/word processing but Ontario reported only 7% of microcomputers as Apple. Appendix R contains tables showing the number and type of microcomputers by province.

TABLE 9

TYPES OF MICROCOMPUTERS UTILIZED IN THE TEACHING OF INFORMATION/ WORD PROCESSING

	NF	PE	NS	NB	PQ	ON	MB	SK	AB	BC	CANADA
Commodore 8032		16	10	65	1	41	35		65		243
Commodore		17	3		15		60		93		188
Commodore Pet		7	10	21	9	78	32		19		176
Commodore Superpet		13	2	78		1	1		25	7	127
Commodore 64		2	35	31	14	1					93
Superpet 9000				74							74
Commodore 4032		8									8
Total Commodore	-	63	60	269	49	131	128	-	202	7	909
	-	100%	47%	86%	47%	63%	36%	-	84%	19%	60%
Apple // e			33		9	15	63	30	21	4	175
Apple			2				22	10		10	44
Apple plus			10		2		12		18		42
Macintosh			18								18
Total Apple	-	-	63	-	11	15	97	40	39	14	279
	-	-	49%	-	11%	7%	27%	100%	16%	39%	18%

TABLE 9 (continued)

	NF	PE	NS	NB	PQ	ON	MB	SK	AB	BC	CANADA
TRS-80 Model 3	1				16	22	45				84
TRS-80						6	61				67
TRS-80 Model 4			1			2	16				19
Total TRS-80	1	-	1	-	16	30	122	-	-	-	170
	5%	-	0%	-	15%	14%	34%	-	-	-	11%
IBM PC			1			21	2			10	34
IBM PC JR						12					12
IBM 5151	4										4
Total IBM	4	-	1	-	-	33	2	-	-	10	50
	19%	-	0%	-	-	16%	0%	-	-	28%	3%
Other Makes/Models*	16		3	23	25		9			5	81
	76%	-	3%	7%	24%	-	3%	-	-	14%	6%
Make/Model Not Indicated			1	23	3		2				29
	-	-	0%	7%	3%	-	0%	-	-	-	2%
TOTAL	21	63	129	315	104	209	360	40	241	36	1518
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

*Other makes/models listed in order of quantity: Keron 820, Xerox Professional Computer, Cemcorp ICON, Northstar, Olivetti, Olympia, Franklin

Table 10 shows that the majority--one hundred two (58%)--of the respondents did not specify the type of printer used in the teaching of information/word processing.

Table 11 indicates the majority of disk drives used were single drives--approximately 12% of the disk drives used were duo disk drives.

Table 12 lists the other peripheral equipment used by business educators in the teaching of information/word processing.

TABLE 10

PERIPHERAL EQUIPMENT (PRINTERS) UTILIZED BY SECONDARY BUSINESS EDUCATORS IN THE TEACHING OF INFORMATION/WORD PROCESSING

	NF	PE	NS	NB	PQ	ON	MB	SK	AB	BC	CANADA
Printer[1]	1	7	10	9	4	15	36	2	16	3	102
Commodore					1		8				9
Line VII	1						7				8
Epson							4		2		6
Apple			6								6
DMP 210			1		1		3				5
Daisy Wheel			1				4				5
Olivetti							3			1	4
DWP 420			1				3				4
Dot Matrix			1			2					3
Letter Quality						1	3				4
Spinwriter				1		2					3
Brother			1				1				2
Commodore Diablo											
Letter Quality			2								2
8023P				2							2
Centronics							1				1
Commodore 1526			1								1
Diablo										1	1
Gemini							1				1
LP VI							1				1
Mannesmann Tally			1								1
MPP 1361				1							1
Qume						1					1
Xerox	1										1
TOTAL	3	7	25	13	6	21	75	2	18	5	175

[1] Make/model not specified.

TABLE 11

PERIPHERAL EQUIPMENT (DISK DRIVES) UTILIZED BY SECONDARY BUSINESS EDUCATORS IN THE TEACHING OF INFORMATION/WORD PROCESSING

	NF	PE	NS	NB	PQ	ON	MB	SK	AB	BC	CANADA
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
Disk Drive		7	14	9	4	5	34	4	13	1	91
Duo Disk Drive					1	15					16
CBM 5050				10							10
Commodore 4040			1		1		6				8
Commodore 8050							3				3
1530					2						2
Commodore 1541			1								1
Commodore Duo 8250					1						1
Commodore 2031							1				1
TOTAL	-	7	16	19	9	5	59	4	13	1	133

TABLE 12

PERIPHERAL EQUIPMENT (MISCELLANEOUS) UTILIZED BY SECONDARY BUSINESS EDUCATORS IN THE TEACHING OF INFORMATION/WORD PROCESSING

	NF	PE	NS	NB	PQ	ON	MB	SK	AB	BC	CANADA
Lanier Dictaphone			10								10
Muppet System							2		3		5
Cassette Drive							3				3
IBM Hard Disk						2					2
Microshare System						2					2
Hayes Modem			1								1
Network System 3							1				1
Print Buffer						1					1
TOTAL	–	–	1	–	–	5	6	–	3	–	25

6. Respondents were asked, "In your opinion, are the current graduating secondary level students adequately trained for job-entry in information/word processing?"

Table 13 indicates that 62% of business educators considered current graduating students to be inadequately trained while only 28% agreed with this statement. Nine percent did not respond to this question.

Respondents were asked to comment on their responses. One major response referred to the limited time available to teach information/word processing concepts and "hands-on" practice on equipment for students. Seventy-five business educators considered the shortage of equipment to be a problem in teaching information/word processing and forty-one respondents stated that the limited time available for hands-on practice was also a problem. Thirty-six business educators stated that because information/word processing was not as yet an individual subject on the curriculum the concepts had to be integrated into another subject (e.g. office procedures). This created another problem of deciding which concepts had to be omitted from the existing subjects in order to teach information/word processing concepts.

Other difficulties cited by business educators about the current methods of teaching information/word processing included the type of equipment being used for hands-on training. Respondents expressed a need for use of dedicated word processors in the classroom as opposed to using only

microcomputers to teach information/word processing. Business educators said students need to be exposed to several types of equipment to become job ready.

Students enrolled in a full one-year course in information/word processing were considered adequately trained for employment. Thirty-six business educators stated that basic information/word processing concepts taught were more beneficial to students than teaching specifics on a particular piece of equipment--that transfer of knowledge would and did take place if students understood basic information/word processing concepts. It was also noted that training for specific jobs should remain the task of the employer not the business educators but that students should come to employers with basic foundations well established in information/word processing.

Eleven business educators stated that some educators were not adequately trained to teach information/word processing and this resulted in students not receiving adequate training for job entry.

Business educators did not only express concerns for students not receiving adequate training for job readiness but in contrast cited some observations of students being adequately trained for job entry.

Basic language skills were found to be deficient in graduating secondary level students by business educators teaching information/word processing thereby reducing the

job readiness of students. Six respondents expressed the need to teach basic skills such as grammar, proofreading, and spelling.

Another concern about equipment was the software being used in the classroom because students must be able to transfer knowledge to business/industry software from classroom software. Three respondents stated that business/industry software and software used in teaching information/word processing in school should be the same or have similar characteristics.

The need for students to develop confidence and become job ready was a concern to business educators. Three educators suggested students be given direct job applications such as assignments as well be encouraged to do term papers and other school assignments from other subject areas on word processors in order to become fluent in the use of word processing equipment and its concepts.

Some business educators who taught information/word processing as part of typewriting and office procedures with assignments done on word processing equipment considered that method as adequate practice for students.

In some provinces, business educators received favourable feedback from currently employed graduates who studied information/word processing in high school. Respondents reported that businesses employing these students indicated that the training offered at the secondary level was sufficient for job entry.

TABLE 13

ADEQUACY OF TRAINING RECEIVED BY CURRENT GRADUATING SECONDARY LEVEL STUDENTS FOR JOB-ENTRY IN INFORMATION/WORD PROCESSING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Adequate	2	22	2	29	8	42	6	35	3	13	18	34	13	16	5	71	5	31	4	44	66	28
Not Adequate	5	56	4	57	8	42	10	59	19	83	30	57	56	71	2	29	11	69	4	44	149	62
No Response	2	22	1	14	3	16	1	6	1	4	5	9	7	9	–	–	–	–	1	12	21	9
Undecided	–	–	–	–	–	–	–	–	–	–	–	–	3	4	–	–	–	–	–	–	3	1
TOTAL	9	100	7	100	19	100	17	100	23	100	53	100	79	100	7	100	16	100	9	100	239	100

7. Replies to the question, "In your opinion, how can the curriculum for information/word processing education at the secondary level be improved to prepare students for the office of the future?" were made by business educators. Numerous comments were made but some of them did not relate to the improvement of the curriculum. Those suggestions directly related to the secondary level curriculum are outlined below.

Sixty-four business educators requested a curriculum which would allow sufficient time for hands-on training with specific on-the-job applications for students.

Forty-four business educators suggested that to improve the curriculum for information/word processing it needs to be clarified and a course outline developed specifically for information/word processing. The respondents pointed out that teachers of information/word processing were spending much time establishing course outlines on their own.

Fourteen respondents indicated that along with a clear course outline in information/word processing teachers would find useful resource materials developed by the department of education. Resource materials listed included textbooks, workbooks, audio visual materials as well as lists of where to obtain such materials.

Three educators stated a need for a word processing task force to be established. Such a task force should include a liaison from business and industry to specify business/industry requirements of graduates to be eligible for employment.

Work experience in automated offices as well as field trips to automated offices were suggested by seven business educators as components of the curriculum.

Three business educators suggested information/word processing become a larger part of the entire business education program or part of other courses. Applications might be for assignments in typewriting or office procedures to be done on word processing equipment.

Three business educators responding to the study questionnaire stated that students graduating from secondary schools lacked language skills. Respondents emphasized that students were particularly weak in grammar, spelling, and proofreading skills and suggested the use of these skills more frequently in all subject areas.

8. Respondents were asked, "How many years have you taught information/word processing?"

Table 14 shows the majority of business educators (78%) have taught information/word processing a relatively short period of time--one to three years. Forty (17%) of the respondents had taught information/word processing from four to six years, four respondents (2%)--from Prince Edward Island, Quebec, and Manitoba--had taught this subject seven to nine years and only three (1%) business educators--from Prince Edward Island and New Brunswick--had taught information/word processing more than nine years. Five respondents did not reply to this question.

TABLE 14

NUMBER OF YEARS SECONDARY BUSINESS EDUCATORS HAVE TAUGHT INFORMATION/ WORD PROCESSING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
1 - 3	9	100	4	58	17	89	15	88	16	69	31	58	73	92	7	100	10	63	5	56	187	78
4 - 6	-	-	1	14	2	11	-	-	5	22	20	38	3	4	0	0	5	31	4	45	40	17
7 - 9	-	-	1	14	-	-	-	-	2	9	-	-	1	1	-	-	-	-	-	-	4	2
More than 9	-	-	1	14	-	-	2	12	-	-	-	-	-	-	-	-	-	-	-	-	3	1
No Response	-	-	-	-	-	-	-	-	-	-	2	4	2	3	-	-	1	6	-	-	5	2
TOTAL	9	100	7	100	19	100	17	100	23	100	53	100	79	100	7	100	16	100	9	100	239	100

9. Respondents were asked, "How did you attain your present knowledge of information/word processing?" The following categories were listed on the questionnaire instrument: formal courses taken during teacher education, self-study, in-service, education journals and magazines, colleagues/clubs/associations, conferences/presentations/ displays, manufacturer's representatives/vendors, and other.

Table 15 shows several methods other than those categories stated above listed by business educators to obtain their present knowledge of information/word processing. These methods were: courses such as summer/evening/community college/business college/non-credit university, work experience, resource materials, leave of absence, field trips, and student teaching.

Formal courses refers to courses taken during teacher education. In-services listed included workshops and sessions such as business education conferences, one-day workshops by school divisions and faculty of education.

Colleagues, clubs also includes associations. One such association to which business educators may belong is the Association of Information Systems Professionals.

Business educators commented that in-services and manufacturers representatives were most useful sources from which to obtain a working knowledge of information/word processing. Another method listed as a high priority item in obtaining knowledge of information/word processing was material received at conferences.

TABLE 15

PROFESSIONAL DEVELOPMENT OF SECONDARY BUSINESS EDUCATORS TO OBTAIN KNOWLEDGE OF INFORMATION/WORD PROCESSING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Self Study	5	14	10	25	20	19	25	22	20	26	41	19	91	27	9	28	16	26	13	23	250	23
In-Service	8	23	4	10	22	21	25	22	19	25	45	21	78	23	5	15	11	17	8	14	225	21
Journals/Magazines	4	11	8	20	12	12	13	12	9	12	26	12	46	13	4	12	6	10	8	14	136	13
Conferences	5	14	6	15	18	17	17	15	7	9	27	13	38	11	6	18	8	13	7	13	139	13
Manufacturers/ Vendors	6	17	2	5	8	8	13	11	11	14	35	17	23	7	2	6	8	13	10	18	118	11
Formal Courses	5	14	4	10	7	7	7	6	5	7	18	9	27	8	2	6	6	10	1	2	81	8
Colleagues/Clubs	2	5	2	5	9	9	7	6	3	4	15	7	20	6	3	9	4	6	7	13	72	7
Other*	1	3	4	10	7	7	7	6	2	3	7	2	14	4	2	6	3	5	2	3	49	4
No Knowledge	–	–	–	–	–	–	–	–	–	–	–	–	2	1	–	–	–	–	–	–	2	0
TOTAL	35	100	40	100	103	100	114	100	76	100	214	100	339	100	33	100	62	100	56	100	1072	100

*Work experience, Summer courses, Evening courses, Community college courses, University courses--other than teacher education, Business college courses, Business math in computer science, Non-credit university courses, Department of education support materials, Leave of absence--developed classroom materials, Division course on stand alones, Student teaching, Field trips to automated offices

Colleagues, clubs also includes associations. One such association to which business educators may belong is the Association of Information Systems Professionals.

Business educators commented that in-services and manufacturers representatives were most useful sources from which to obtain a working knowledge of information/word processing. Another method listed as a high priority item in obtaining knowledge of information/word processing was material received at conferences.

10. Respondents were asked, "In your opinion, are business education teachers trained adequately to teach information/word processing?"

Table 16 indicates one hundred eighty-three (58%) of the respondents surveyed considered business educators not to be adequately trained to teach information/word processing while only sixty-one (19%) considered the training of business educators adequate to teach information/word processing. Twenty-three percent of the respondents were undecided. Some respondents expressed the concern that they were not informed as to the training of other educators and current teacher education programs and thus felt they could not respond positively or negatively.

A reason given by business educators for inadequate training was a shortage of opportunities for teachers to train. Thirty-three teachers noted that formal courses were not available to them, especially in smaller towns and rural areas. These teachers also expressed the desire for methods courses to help them in teaching information/word processing.

Thirty-one respondents noted that some business educators fear technology, therefore such educators have not taken the initiative to upgrade their qualifications. Respondents emphasized that curriculums did not specify the concepts business educators must teach and that educators therefore do not update their qualifications.

Twenty-eight respondents noted that business educators were not updated on happenings in automated offices and therefore could not adequately teach information/word processing with a realistic approach. It was suggested that business educators also read current information on information/word processing to become better qualified on the subject.

Twenty-four respondents stated that in-services and workshops did not adequately train business educators to teach information/word processing. The training varied among respondents because there were many training methods. These methods included a one-day in-service, a one-week period of training given by the vendor of equipment purchased by the school, as well as self study. The reasons given for short training periods were related to insufficient time available to teachers outside of regular teaching hours to study information/word processing.

Seventeen respondents stated that business educators must be highly self-motivated and take the initiative to become adequately trained to teach information/word processing.

Fifteen teachers expressed a concern that school divisions did not grant adequate leave time for teachers to become fluent in the operations of word processors. Many stated that they learned the process as they taught the concepts and functions of the equipment.

Twelve respondents who considered business educators to be trained adequately in the area of information/word processing specified those educators to be the recent graduates of teacher education programs teaching updated concepts relating to the current business practices. However, respondents also noted that few of these recent graduates are currently employed by school divisions. Also, it was noted that not all teacher education programs have adequate training programs especially in the area regarding sufficient and adequate equipment.

A suggestion made by ten business educators to adequately train teachers to teach information/word processing was to have experts from "real offices" educating teachers.

Non-availability of resource materials was stated by four respondents as a reason for inadequate training for business educators who wished to gain training by means of self study.

TABLE 16

ADEQUACY OF TRAINING OF SECONDARY BUSINESS EDUCATORS TO TEACH INFORMATION/ WORD PROCESSING

	NF		PE		NS		NB		PQ		ON		MB		SK		AB		BC		CANADA	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Adequate	1	10	1	9	5	21	6	16	5	21	18	33	17	16	2	18	3	16	3	17	61	19
Not Adequate	9	90	2	18	14	58	24	65	14	58	26	48	68	63	5	41	13	68	8	44	183	58
Undecided	–	–	8	73	5	21	7	19	5	21	10	19	23	21	5	41	3	16	7	39	73	23
TOTAL	10	100	11	100	24	100	37	100	24	100	54	100	108	100	12	100	19	100	18	100	317	100

11. Respondents were asked, "How can business teacher education be improved to educate teachers adequately to teach information/word processing?" Table 17 lists twenty-one suggestions cited by business educators as methods to improve teacher knowledge of information/word processing.

Sixty-seven respondents expressed the need for workshops consisting of intense training--not just a mere several hours after school hours. Teachers suggested several days of workshops on the same type of equipment as used in their school to apply training in the classroom.

Fifty-seven business educators suggested university courses be made available with course content being developed by using input from the business sector. A methods course was considered high priority. The need for adequately trained professors who could answer problems experienced by teachers teaching information/word processing was stated by some respondents. Respondents recommended qualified business educators, adequately trained in information/word processing, should teach other business educators. The need to offer credit courses at several locations was expressed by respondents from some provinces. This need also included correspondence programs offering information/word processing theory courses.

Thirty-one teachers suggested that they be allowed to take time away from teaching to obtain adequate training. Such time was considered in terms of a leave of absence to obtain work experience in automated offices. Incentives and encouragement by school divisions and boards such as tuition fees paid for teachers by divisions would promote adequately trained teachers.

Summer and evening school courses offering sufficient hands-on training and exposure and practice on several different types of equipment was suggested by twenty-eight respondents as a means of retraining teachers currently teaching and lacking in formal information/word processing training.

Twenty-seven business educators stated that an information/word processing course should be a requirement for all current graduating business educators.

A strong recommendation came from twenty-two business educators to circulate updated information among teachers. This would allow for an exchange of ideas and sharing of problems and provide teachers with better teaching strategies.

Field trips to automated offices for one or more days and/or cooperative work programs for teachers in business was considered by twenty respondents as an excellent means of training teachers. This again

meant teachers would require some time away from regular classroom duties to participate in such an experience.

Seven business educators commented that the government could improve the teaching of information/word processing by increasing funding for equipment so that educators could allot adequate time for hands-on training for students.

Business educators generally answered all questions. In some instances they did not respond but this was certainly a small minority and in some cases business educators commented why they could not respond. Such a case occurred in question ten asking respondents to identify business educators as to being adequately trained or not in information/word processing. Some respondents indicated they could not respond "yes" or "no" because they were not familiar with the training of other business educators.

Many comments were documented by respondents stating concerns and opinions regarding information/word processing education. Comments are documented in Appendices S, T, U, and V.

TABLE 17

SUGGESTIONS FOR IMPROVEMENT OF THE EDUCATION OF SECONDARY BUSINESS EDUCATION TEACHERS

	NF	PE	NS	NB	PQ	ON	MB	SK	AB	BC	CANADA
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
Workshops	3		5	8	8	17	18	1	3	4	67
University Credit Course	2	3	6	8	4	9	19	2	3	1	57
Hands-on Training				6	6	10	14	2	1	1	40
Leave of Absence	2	1	3	4	4	10	2		2	3	31
Equipment Training	2	1	5	3	2	1	9	2	2	1	28
WP Course in Teacher Ed.			2	3	4	5	9		2	2	27
Summer/Evening Course	1	1	4	3	2	3	9		1	1	25
Updated Information		1	3	3	1	7	5		1	1	22
Field Trips to Offices			4	4	3	4	2	1	2		20
Upgrade Teacher Qualifications			2	2	4	3	2	2	2	2	19
Methods Course			2	3	1	3	6	1	1		17
Classes at Various Locations	2	1					9				12
Availability of Materials				1	1	2	3	1		1	9
Teacher Incentives	1			1	3	3					8
Increased Government Funding	1		1	1		2	2				7
School Boards Encourage PD					3	3				1	7
Adequately Trained Professors			1	2			2			1	6
Curriculum Clarified				1		1	2				5
Business/School Liaison				2			1	1			4
Associate Teaching						1					1
Employ Qualified Teachers						1					1

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Information/word processing instruction is a new area in business education. Readers of this study must keep this fact in mind when interpreting the findings as portrayed in this study.

The researcher surveyed 382 business educators. Of this number, 317 replies were received which constituted an eighty-three percent return.

Correspondence was sent to business teacher education institutions, business education consultants, superintendents, business directors, principals, and business educators to obtain names of business educators teaching or involved in information/word processing education, as well as to obtain curriculum requirements in business education and business teacher education in each province.

A pilot committee was established to test the survey instrument and to offer suggestions for improvement for maximum clarity and efficiency.

One follow-up letter was sent in each correspondence category as well as in the mailing of questionnaires to business educators.

Summary

The purpose of this study was to examine the development and current status of information/word processing education at the secondary level in selected Canadian public schools.

The findings of this study indicated information/word processing instruction is a recent addition to the business education curriculum.

The sample consisted of 317 business educators. Of this number 239 were teaching information/word processing. Two hundred thirty-six business educators were using a hands-on approach in teaching information/word processing.

Hardware/Equipment

1. Business educators taught information/word processing using a hands-on approach. Only three business educators from Manitoba did not indicate using hands-on hardware/equipment in teaching information/word processing. All business educators from the other nine provinces stated they did use the hands-on approach indicating students enrolled in information/word processing in Canada receive hands-on experience.

2. Microcomputers represented the majority (85%) of the equipment used in teaching information/word processing. Of the 1754 pieces of equipment used in teaching information/word processing only 272 (15%) were dedicated word processors. Provinces having more populous cities and larger schools indicated using a higher number of dedicated word processors (Ontario--167, Quebec--38, Alberta--32, and British Columbia--23).
3. Commodore microcomputers were the most common (60%) microcomputers used in teaching information/word processing. The other three major types of microcomputers used were Apple (18%), Tandy (11%), and IBM (3%).

Curriculum

1. Information/word processing was taught as a component of other business subjects in all provinces. Office procedures was the most common (44%) subject to be integrated with information/word processing and typewriting was second (30%).
2. Information/word processing was taught as a separate subject or unit/module in some schools. Twenty-seven schools in seven provinces taught information/word processing as a separate unit.
3. Theory/concepts were taught by the majority (79%) of business educators in teaching information/word processing.

Prerequisite Skills/Courses and Adequacy of Training of Secondary Level Graduates

1. Prerequisite skills/courses required by students to study information/word processing were typewriting (79%), English (10%), and office procedures (4%).
2. The majority of secondary level graduate students who studied information/word processing were considered to be inadequately trained for job entry in information/word processing. One hundred forty-nine (62%) business educators indicated students who graduated from high school were not job ready in information/word processing. This high percentage can be attributed to the fact that information/word processing instruction is a new addition to the business education curriculum. The sixty-six (28%) business educators who indicated that students were adequately trained referred to the graduates who had a full year or a separate course in information/word processing.

Business Teacher Education

1. Business educators obtained their knowledge of information/word processing primarily through self study (23%), by attending in-services (21%), reading journals and magazines (13%), and attending conferences (13%). Formal courses represented only eight percent of this training.

2. Business educators were considered inadequately trained to teach information/word processing. One hundred eighty-three (58%) of the respondents considered business educators to be inadequately trained to teach information/word processing. Business educators have only recently been exposed to courses in information/word processing because this is a relatively new area. Business education, especially information/word processing, is a fast changing field making it difficult for business educators to keep up with current information, trends, and methodology. Business educators were honest and critical in stating the inadequacy of their training to teach information/word processing because of this fact. Business educators are striving to attain perfection in their profession and must be commended for this.
3. Much is being done by business educators to meet the challenges of automation. Business educators suggested twenty-one ways (Table 17) to increase their knowledge of information/word processing. Many business educators were enrolled in information/word processing courses, attending in-services, workshops and conferences, and were reading current information about information/word processing.

Conclusions

Hardware/Equipment

Microcomputers were used by the majority of business educators teaching information/word processing. Students enrolled in information/word processing programs received only a minimum (if any) exposure to dedicated word processing hardware/equipment.

Curriculum

Information/word processing was taught as a component of other business education subjects in all provinces. A few schools taught information/word processing as a separate course or unit/module in other business education subjects.

Prerequisite Skills/Courses and Adequacy of Training of Secondary Level Graduates

Most business educators required students to have a knowledge of typewriting before studying information/word processing. The majority of secondary level graduate students were inadequately trained for job entry in information/word processing. This occurred because information/word processing is a new area in business education and most students received only a minimum of instruction about information/word processing as part of their other business education subjects.

Business Teacher Education

Business educators obtained their knowledge of information/word processing primarily through ways other than formal courses--self study, in-services, workshops, conferences, and reading current information. The majority of business educators were considered inadequately trained to teach information/word processing because this is a new field in business education. Information/word processing is a fast changing field making it difficult for business educators to meet the challenges of automation. Business educators, however, are working hard to meet these challenges.

Recommendations for the Improvement of Business Education

The researcher made the following recommendations for consideration by business educators, school administrators, department of education consultants, and business teacher educators in Canada.

Hardware/Equipment

1. Equipment acquisitions should be sufficient for information/word processing programs to allow adequate hands-on training.

Prerequisite Skills/Courses, Adequacy of Training of Secondary Level Graduates and Curriculum

1. The information/word processing course should allow adequate hands-on training and exposure to several makes/models of hardware/equipment including dedicated word processors so that students can transfer their knowledge gained in the classroom easily to a job situation.
2. Information/word processing should be established as a separate course or unit/module in the business education curriculum. Such a curriculum should be established by representatives from business/industry, business education consultants, business teacher educators, and business educators.
3. Job applications, work experience, and field trips should be a part of the information/word processing course.

4. Language skills need to be emphasized in the information/word processing course by including them in classroom instruction and assignments which include such skills.
5. The information/word processing course should include the use of business/industry software.

Business Teacher Education

1. Business teacher education needs to establish and make available at several locations (rural and urban) courses for business educators to become updated in information/word processing.
2. In-services and workshops need to be established at regular intervals to allow business educators to become or stay current in information/word processing.
3. Business educators should be allowed to take a leave of absence to become updated in information/word processing whether by taking courses or through work experience.
4. Business educators must continue to be self-motivated and take initiative in becoming familiar with information/word processing in business/industry by taking courses and reading current articles.

Recommendations for Further Research

1. Additional studies should be conducted to establish updated information in information/word processing education.
2. A future study should be conducted to establish the needs of business and industry and to determine the adequacy of the information/word processing curriculum and instruction.

APPENDICES

APPENDIX

A - Principles of Instruction

B - Provincial Curriculums--Newfoundland
Word Processing Course Outline
(Pilot Project)

C - Provincial Curriculums--Prince Edward Island
Business Information Processing

D - Provincial Curriculums--Nova Scotia
Introduction to Word Processing
(A Teaching Unit to be Used In the
Business Education Program, pages 1 - 8)

E - Provincial Curriculums--Quebec
Word Processing I
(An Experimental Course)

F - Provincial Curriculums--Ontario
Integrated Office Systems Program
Section 6.7 Excerpts
Keyboarding Program Section 6.9 Excerpts

G - Provincial Curriculums--Manitoba
Office Procedures 302 Excerpts
Data Processing 302 Excerpts

H - Provincial Curriculums--Saskatchewan
Computer Application 10, 20 And
Computer Science 10, 20, 30 Excerpts

I - Provincial Curriculums--Alberta
Office Procedures 10-20-30, Module 5
Business Education 10-20-30 Optional
Modules, Modules 14 and 15

J - Curriculum Outline, H. Bearg Study

K - Letters to Universities: Business Teacher
Educators

L - Letters to Business Education Consultants

M - Letters to Pilot Committee

N - Survey Instrument: Questionnaire

O - Letters to Superintendents, Business Directors

P - Letters to Business Educators

Q - Thank You Letters

R - Types of Microcomputers by Province

S - Comments from Business Educators to Question 6

T - Comments from Business Educators to Question 7

U - Comments from Business Educators to Question 10

V - Comments from Business Educators to Question 11

W - Enrolment of School Divisions Participating in this Study by Province

X - Suggested Journals

APPENDIX A - PRINCIPLES OF INSTRUCTION

PRINCIPLES OF INSTRUCTION

1. Instruction must be current with and based upon an up-to-date analysis of an occupation's employment skill demand.
2. Instruction should be based on broad core curricula characterized by flexibility in offerings.
3. Instruction within the broad core curricula should be based upon specific target jobs.
4. Instruction must be provided in the adequate time frames necessary to simulate job situations.
5. Instruction should, as much as possible, be self-pacing with emphasis placed on the quality and quantity standards of an occupation.
6. Instruction requires adequate facilities and equipment to accommodate learning activities and to simulate, or be, actual job situations.
7. Instruction should be given by teachers who have had occupational experience in the subject(s) that they are teaching.
8. Instruction becomes effective when teachers participate in both preservice and continuous inservice teacher education programs.
9. Instruction must be directly related to clearly defined student goals.
10. Instruction should be prescriptive, preceded by an analysis of the learning needs of each student.
11. Instruction must adapt to identifiable student effort factors so that all students become motivated to learn.
12. Instruction must be individualized to provide for wide differences in background and learning abilities, and grouped for developing team contribution skills.
13. Instruction should be given to accommodate the students' learning requirements in an occupational atmosphere with grades reflecting payment for work well done.

14. Instruction must develop originality, initiative and thinking abilities rather than memorization without understanding.

15. Instruction must instill work habits required by an occupation.

16. Instruction should include information and activities designed to protect and conserve human life.

17. Instruction must be evaluated by student performance criteria based as realistically as possible on occupational demands.

18. Instruction must have job placement and/or advancement or employment realignment as its end result.

APPENDIX B - PROVINCIAL CURRICULUMS--NEWFOUNDLAND

WORD PROCESSING COURSE OUTLINE
(Pilot Project)

Word Processing Course Outline

Pilot Project

Clerk Typing Program and Stenography

Initial Class: 11 students

Eligibility: Students whose projected termination dates fall between now and August, who have the following prerequisites.

Prerequisites: Typing Speed - 35 to 40 gross wpm
Typing blocks completed - Centering
Tabulation
Basic Letters
Advanced Letters
Communications blocks completed - Comprehension
Spelling
Proofreading
Punctuation
Related subjects on schedule

Time Available: 30 periods or more

Student Preparation: Read chapter on Word Processing - Modern Office Procedures

Presentation Method:

Each
- Lecture - Word Processing Concepts - Instructor
- Slide Presentation - Word Processing Concepts - Instructor
- Handout - Word Processing Terms - Instructor
- Terminal Demonstration - Demonstrator
- Assignment Access Codes - Demonstrator

Hands-on-Training - 8 user manuals
Extra hands-on exercises for each Manual to reinforce learning
Printer Operation

Test Period: Hands-on test in order to qualify for evaluat ion on Record of Achievement:

Basic Operations - Word Processing

Two Instructors involved: S. Ford and J. Winsor
Both Instructors will cover 3-hour block. Two Instructors will take alternate Thursdays in lab with assistance from the demonstrator.

Upon successful completion of this unit the student will:

RELATE TO WORD PROCESSING CONCEPTS

BEHAVIOURS	CRITERIA
Explain in writing what is meant by such expressions as: - automatic centering - justification of right margin - automatic underlining and uppercase - repagination - deletion and insertion of material - memory filing - boldface type - listing - text revisions	1. 80% accuracy

)ITIONS GIVEN:

Given a theory test

INSTRUCTIONAL RESOURCES:

Text

Guest Speaker

Film

Filed Trip(s)

P.O. BOX 1296
STN. C
ST. JOHN'S

newfoundland secretarial academy

A BRANCH OF
TOKA SECRETARIAL LIMITED

FULL TIME SECRETARIAL COURSE SPECIALIZING IN WORD PROCESSING

INTRODUCTION

Word Processing: - A complete system for the conversion of original thought into a readable form of communication.

Benefits of Word Processing:
- *More creative work*
- *No more "white outs" or erasure marks*
- *No more "cut and paste" revisions*
- *Easy to use and remember editing functions*
- *No more lengthly retyping*
- *Less frustration and more job satisfaction*

Throughout our Word Processing Course, students will become familiar with the effective use of the AES Alphaplus 12 and the Olivetti TES 401 word processors. They will also be introduced to the concepts of word processing in general, and the reasons why firms are becoming aware of the advantages of utilizing a word processing system.

KEY POINTS OF OPERATIONAL AREAS ON THE AES

Students will learn all instructions necessary for them to become efficient Word Processor Operators. They will learn highly detailed explanations and instructions to:

- *center material automatically*
- *justify right margins*
- *automatic underlining and uppercase*
- *repaginate texts*
- *delete and insert material*
- *memorize onto file diskettes*
- *create pleasant looking documents*
- *type material in boldface*
- *listing*

..... *and much more*

KEY POINTS OF OPERATIONAL AREAS ON THE OLIVETTI TES 401

- centering
- justifying
- stop codes
- reference codes
- storing on magnetic media & retrieving from
- automatic underline
- automatic indentation
- major text revisions

GENERAL INFORMATION

The pass mark is 80% and is broken down into three categories. A Hands-on exam on the TES 401 is marked out of 25%, a Hands-on exam on the AES is marked out of 25%, and a written exam is marked out of 50%. The three marks are then combined to make one total score.

APPENDIX C - PROVINCIAL CURRICULUMS--PRINCE EDWARD ISLAND

BUSINESS INFORMATION PROCESSING

BUSINESS INFORMATION PROCESSING

This course is designed for second-year business students and focuses on the fundamental concepts and applications of business information processing using microcomputers.

The modern business office is using automated equipment, systems, and procedures in order to lower costs and increase the productivity in generating paperwork. In order to be prepared for working in such an office, students will be learning basic concepts of word processing, computerized accounting, electronic office information systems, as well as being introduced to computer systems, data bases, and electronic spread sheets.

As future office workers, students will be using computers and computer software, as well as being involved in new office systems and procedures. Through the use of hands-on applications and theory sessions, this course will familiarize business students with the concepts of this new technology.

PREREQUISITES

One course in business typing

One course in accounting

Office Procedures, although not compulsory, would be an asset

DURATION

120 Hours

OBJECTIVES

Some of the major objectives of this course are:

- to demonstrate the operation of a simple computing system and computer terminology
- to identify the advantages, components, and applications of word processing
- to enable the student to use a word processing system to create and revise documents as well as store and retrieve files from storage media
- to identify the advantages and uses of data bases and electronic spread sheets
- to enable the student to be knowledgeable about methods of reprographics, information distribution, and storage and retrieval systems
- to inform students about types of careers in the modern business office as well as the attributes and training required to enter these types of jobs

SUGGESTED TIME SCHEDULE

UNIT OF STUDY		HOURS
1.0	Introduction to the Computer	5
2.0	Word Processing Concepts and Systems	10
3.0	Word Processing Applications	50
4.0	Electronic Office Automation Systems	15
5.0	Work and the Electronic Office	5
6.0	Computerizes Accounting Fundamentals	30
7.0	Introduction to Data Bases and Electronic Spread Sheets (Optional)	5
	TOTAL	120

STUDENT EVALUATION

A variety of methods of evaluation may be used, including written tests, projects, and hands-on assignments. It is important to note, though, that there should not be a great emphasis on memorizing commands that suit one particular word processing software program. The use of reference books should be encouraged. In this way, students will learn concepts that can be easily transferred from one system to another.

TERMINAL OBJECTIVES

Upon completion of this course, students should be able to:

- demonstrate an understanding of the operation of a simple computing system and computer terminology
- use microcomputer system hardware, peripherals, and software
- appreciate the role of technology in the business office
- discuss the term "word processing" and identify the advantages of using word processing in the business office
- know the components of a word processing system
- identify common applications of word processing in a business office
- understand and use word processing technology
- create, format, revise, and output text
- store and retrieve text from storage media
- manage office information through the use of the word processing system
- understand the terminology and applications of the information processing cycle including processing, output, distribution, storage, and retrieval
- be aware of careers in word processing, desirable personal qualities, and training requirements
- understand how word processing will affect the business office environment
- apply manual accounting fundamentals to the microcomputer
- input data into accounting software programs
- extract information from accounting software packages to create fiscal year statements
- recognize the potential and advantages of using data bases and electronic spread sheet programs in a business office

APPENDIX D - PROVINCIAL CURRICULUMS--NOVA SCOTIA

INTRODUCTION TO WORD PROCESSING
(A Teaching Unit to be Used In the Business Education Program, pages 1 - 8)

INTRODUCTION

Introductory Comments

This unit on word processing has been prepared as a guide for teachers in presenting word processing concepts and skills in the business education program.

Most students who enroll in business education courses would benefit from an introduction to word processing, but it is essential that program students (that is, those who are acquiring job entry skills), be acquainted with both concepts and applications in this field. Where equipment and circumstances permit, additional time may be devoted to word processing so that some proficiency is achieved.

The full unit--concepts and applications--may be introduced in the office procedures course, with other courses such as typewriting, shorthand, and business communications being used to augment and advance the teaching of the concepts and skills. It is important to note that word processing includes not only the use of the machine, but also phases of work on a document, from its creation to its final distribution. Teachers should consider each phase of the cycle--origination (input), production (output), revision, distribution, and storage (records management)--in determining the role that each course can play. An examination of the concepts and skills included in each phase will facilitate the process. The role of each course may be further clarified by a

consideration of the following general skills and characteristics needed in word processing: language skills and proofreading, keyboarding skills, listening skills, automated equipment skills, ability to cope with change, ability to learn on the job, ability to work as a team member, and a strong work orientation.

Alternatively, a multi-subject approach may be used to introduce the unit. With this approach, various aspects of the unit--knowledge of the terminology used in a word processing environment, the underlying concepts, and the actual applications--may be taught in different courses. The courses on office procedures, typewriting, shorthand, and business communications could be used to introduce parts of the unit. This approach requires careful communication so that the knowledge, skills, and attitudes are presented without undue overlapping and in the most appropriate sequence. For example, applications of word processing should take place only after the basic skills of typing and formatting have been mastered.

The chart included under "Teaching Suggestions" will serve as a guide for incorporating word processing into the existing business education program. Regardless of the approach used, it is critical that teachers plan and coordinate their efforts so that all the objectives can be achieved.

The amount of time required to cover the word processing unit will depend on the approach used and the equipment available. While teachers should use their discretion in allotting time for

this unit, it is suggested that a minimum of 7-10 hours is needed for introducing the basic concepts. Additional time may be spent on reinforcement and emphasis of these basic concepts and in reinforcing skills such as proofreading, editing, and machine dictation skills.

An average of 6-8 hours will enable the student to complete the suggested topics in the applications section. For a student to acquire job entry skills, however, a minimum of 35-40 hours is recommended.

Although equipment is not necessary to teach word processing concepts, it can greatly facilitate the process. It also enables students to obtain the practical "hands on" experience that is so important to today's business graduate.

The following activities will add variety to the unit of work and become even more important when access to equipment is limited or non-existent.

(1) Equipment demonstrations

(2) Field trips to offices which have adopted word processing

(3) Guest speakers

(4) Current readings about word processing

(5) Audio-visual presentations

Aim

This word processing unit is designed to acquaint the student with the principles and concepts of word processing and to provide the student with "hands on" experience (if equipment is available).

Rationale

Word processing is changing office skill requirements and career opportunities, and knowledge of word processing has become an essential part of a business education program. Word processors are being used to increase productivity, provide improved services, and control costs. Students seeking office jobs in today's market must understand the basic concepts of this new technology. In particular, they must have an awareness of how the basic factors--people, procedures, and equipment--are combined in order to increase productivity and reduce costs. Students who understand word processing, who are familiar with the variety of equipment available, and whose business program includes training on a word processor, will be better prepared to meet the demands of the automated office.

General Objectives

The student should:

(1) master word processing terminology;

(2) know the various categories of computers that can be used to provide a word processing system;

(3) identify the essential hardware components of a word processing system and understand the importance of compatibility;

(4) understand the ergonomic factors of a word processing system so that such knowledge can contribute to the student's good health and productivity;

(5) be acquainted with word processing keyboards and understand their dissimilarities to a typewriter keyboard;

(6) recognize the types of printing devices and be acquainted with the enhancements and supplies that are available;

(7) be acquainted with software potential and limitations;

(8) understand electronic mail;

(9) be aware of how filing can be handled electronically;

(10) develop skill in handling text with a word processor.

Teaching Suggestions

The following charts will serve as a guide for the incorporation of word processing concepts and skills into the existing business education program.

INCORPORATING WORD PROCESSING INTO
YOUR EXISTING BUSINESS EDUCATION PROGRAM

Topics or Ideas To Incorporate	Typewriting	Shorthand	Business Communications	Office Procedures
Word Processing Concepts	X	X	X	X
Word Processing Terminology	X	X	X	X
Types of WP Applications	X			X
Kinds of WP Equipment	X			X
New Job Descriptions	X	X	X	X
Standard Proofreading Marks	X	X	X	X
Proofreading Exercises	X	X	X	X
Grammar, Punctuation, and Word Division	X	X	X	X
Spelling	X	X	X	X
Drills on Backspacing	X			X
Drills on Required Hyphens	X			X
Machine Transcription	X			X
Writing Letters	X		X	X
Dictating Letters	X		X	X

INCORPORATING WORD PROCESSING INTO
YOUR EXISTING BUSINESS EDUCATION PROGRAM

Topics or Ideas To Incorporate	Typewriting	Shorthand	Business Communications	Office Procedures
Type or Work from Handwritten Copy (use some poor writing)	X		X	X
Set Priorities and Follow Through on Assignments	X	X	X	X
Drills to Develop Listening Skills	X	X	X	X
Drills to Develop Ability to Follow Directions	X	X	X	X
Keeping Work Logs	X	X		X
Measure Productivity	X	X		X
Document Coding and Filing	X	X		X
Use of Procedures Manuals	X	X	X	X
Rush Work--Working Under Pressure	X	X		X
Supervising Personnel	X			X
Training Another Employee	X	X	X	X

Evaluation

Evaluation of student progress is an essential part of successful teaching and learning. A variety of methods may be used. Written tests, projects, and class marks are some suggestions. Rough draft material entered into the word processor and edited by the student to meet accepted standards of mailability can be used to assess skill attainment.

There should not be undue emphasis on memorizing commands as they vary from one system to another. It is quite appropriate to allow reference to manuals; and in fact, students should be encouraged to make full use of these manuals.

APPENDIX E - PROVINCIAL CURRICULUMS--QUEBEC

WORD PROCESSING I
(An Experimental Course)

BUSINESS EDUCATION

PROFILE: SECRETARY

COURSE TITLE: WORD PROCESSING I

GENERAL OBJECTIVE: To enable the student to type, to store into memory, to correct, and to print different documents with the aid of word processing equipment.

TERMINAL OBJECTIVES	INTERMEDIATE OBJECTIVES	CONTENT
1.0 To introduce the student to word processing	1.1 Knowledge of the historical background of word processing	- History and factors that led to word processing
	1.2 Knowledge of the different components of the system	- Monitor, keyboard, internal memory, disk drives and diskettes, printer
	1.3 Ability to start up and use word processing equipment	- Turning on the equipment - Understanding each mode within the word processing system - Using programs on diskettes - Going through exercises with a diskette
	1.4 General knowledge of word processing operations	- Nature and functions: . typing . storing into memory . correcting . printing

TERMINAL OBJECTIVES	INTERMEDIATE OBJECTIVES	CONTENT
	1.5 Perception of the advantages of word processing	- Increasing productivity - Elimination of repetitive work - Facilitating changes within a document - Printing several originals from the same source document - Possibility of sorting information - Possibility of making arithmetical computations - Possibility of long-distance communications - Utilization of other software
	1.6 Knowledge of ergonomics	- Nonreflective monitor - Position of monitor - Furniture and accessories
	1.7 Health & security	
2.0 To enable the student to type a document on word processing equipment, to put it into memory, and to print it.	2.1 Knowledge of the keyboard	- Standard keyboard keys - Special keys (cursor, correction key, etc.)
	2.2 Basic knowledge of formatting	- Length & width of paper used - Margins - Tabulators - Spacing - Non-printing - Number of lines per page
	2.3 Specialized skills of formatting	- Centring - Underscoring - Capitalization

TERMINAL OBJECTIVES	INTERMEDIATE OBJECTIVES	CONTENT
	2.4 Knowledge of storing documents into memory	- Procedure to store information on a diskette - Viewing and printing the catalogue
	2.5 Knowledge of printing of copy without options	- Monitor and/or disk copy
3.0 To enable the student to revise documents	3.1 Knowledge of basic text revision	- Printing from monitor and/or diskette - Insertion of text
	3.2 Knowledge of storing correct text into memory	- Updating after corrections are made - Print-out (hard copy)
4.0 To enable the student to know the components and main functions of a printer	4.1 Knowledge of operating the printer	- Manual operation - Paper feed - Automatic operation
	4.2 Perception of printing wheels and ribbons	- Different types of printing wheels - Wheel change - Ribbon change
	4.3 Perception of basic printing commands	- Printing from monitor with option - Printing one or several pages of text - Printing several copies of the same text - Justification of margins - Temporary stopping of printing - Cancelling print commands

TERMINAL OBJECTIVES	INTERMEDIATE OBJECTIVES	CONTENT
5.0 To enable the student to process already stored information	5.1 Knowledge of modifying content on a disk	- Renaming files - Deleting information - Copying information - Changing the order of the content of a catalogue
	5.2 Knowledge of retrieving information	- Retrieval commands
6.0 To enable the student to process tables and repetitive documents	6.1 Knowledge of processing tables	- Tabulator for right alignment - Alignment symbols - Columnar headings - Print-out
	6.2 Knowledge of merging documents	- Subscripted files - Print-out
(75 periods)		

APPENDIX F - PROVINCIAL CURRICULUMS--ONTARIO

INTEGRATED OFFICE SYSTEMS PROGRAM
SECTION 6.7

(Integrated Office Systems B & I,
pages 1 - 3, 7)

(Integrated Office Systems II,
General Level, pages 12, 13, 18)

(Integrated Office Systems I,
Advanced Level, pages 23, 24, 29)

(Integrated Office Systems II,
Advanced Level, pages 33, 34, 40)

KEYBOARDING PROGRAM
SECTION 6.9

(Keyboarding--Business Applications II,
General Level, pages 26 - 28)

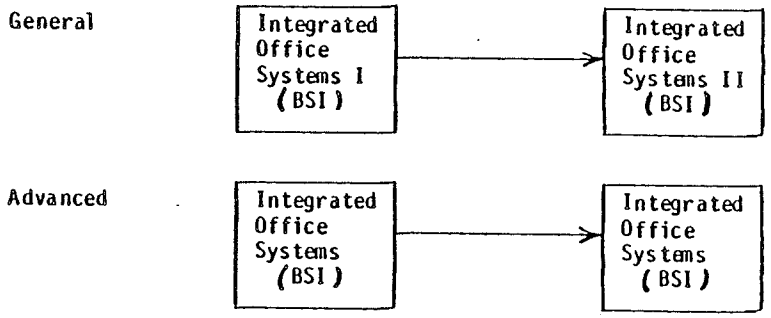
INTEGRATED OFFICE SYSTEMS (BSI) PROGRAM

PROGRAM DESCRIPTION:

The Integrated Office Systems Sections of this Guideline authorizes four credit courses: a General or an Advanced level credit course in Integrated Office Systems - Introductory at the Senior level; a General or an Advanced level credit course in Integrated Office Systems - Second year at the Senior Level. Students can earn a maximum of two in-school Integrated Office Systems credits toward their OSSD.

FLOWCHART OF PROGRAM:

Senior Division



NOTE: One credit in keyboarding is required as a prerequisite for integrated office systems at the general and advanced levels.

INTRODUCTION TO PROGRAM:

Integrated Office Systems emphasizes efficient and effective business procedures to assist students to acquire an understanding of the current business environment. The Integrated Office Systems courses involve a concentration on theoretical concepts and less emphasis on practical applications. Practical applications are found in the senior division Keyboarding courses. Courses in Office Systems should assist students in their understanding of current office procedures and allow for an appreciation of new technological developments.

All courses will provide students with opportunities to develop:

- interpersonal skills
- human relations skills
- thinking skills
- decision making skills
- problem solving techniques
- self-evaluation procedures
- flexibility, adaptability

A knowledge of business procedures and office systems is essential for students planning to work effectively in a business environment. All courses in Integrated Office Systems will allow students to:

- develop and apply keyboarding skills to meet their need
- develop professional and business-like behavior

AIMS OF THE PROGRAM:

Courses in Integrated Office Systems will allow students to:

1. Acquire a knowledge of and an appreciation for current office equipment
2. Develop decision-making skills
3. Develop effective communications skills
4. Develop an understanding and appreciation of the standards and requirements of office employment.

INTEGRATED OFFICE SYSTEMS
COURSE NAME

SENIOR	GENERAL	ONE
DIVISION	LEVEL	MAXIMUM CREDITS

COURSE DESCRIPTION:

Integrated Office Systems 1, at the General level, will provide students with an opportunity to investigate current technological developments in business and assess their effect on the working environment. With a knowledge of office systems and technological developments, students will develop an awareness of the skills needed to adapt to the challenges of a constantly changing business environment.

Prerequisite - Keyboarding: Introduction

AIMS

Students will have opportunities to:

1. Examine the organization, functions and procedures common to the changing office environment.

2. Develop vital communication skills required in business today.

3. Concentrate on interpersonal, human and public relations skills and demonstrate professional business behavior.

4. Analyze their potential career paths, further educational directions, benefits and responsibilities.

AIMS (Cont'd)

5. Use terminology, documentation and procedures designed for today's office.

6. Integrate fundamental business skills, specialized knowledge, effective and interpersonal skills.

INTEGRATED OFFICE SYSTEMS I
COURSE NAME

SENIOR	GENERAL	ONE
DIVISION	LEVEL	MAXIMUM CREDIT

COURSE CONTENT:

Topic No.	Core	Topic Title	Percentage for Emphasis & Evaluation
1	X	The Office Environment: - Changing Work Environment - Interpersonal Relationships and Team Work - Communication Skills - Decision-Making Skills	15%
2	X	Career Planning: - Standards of Performance - Continuing Education Directions	10%
3	X	Integrated Office Procedures and Systems: - Word Processing - Machine Transcription - Reprographics - Records Management	45%
4	X	Administrative Support Functions - Communication Skill Development -Telephone and Telecommunication - Mail Distribution - Meetings - Use of Reference Materials	30%
			100%

TOPIC NUMBER 3: INTEGRATED OFFICE PROCEDURES AND SYSTEMS

EMPHASIS/EVALUATION 45%

Word Processing

CORE OBJECTIVES	TEACHER'S NOTES AND SUGGESTED ACTIVITIES
Students will:	
1. Recognize the need for word processing systems.	
2. Identify word processing equipment capabilities.	
3. List appropriate qualities and/or skills for word processing personnel.	
4. Apply the principles of keyboarding, formatting, text-editing, storing and retrieving on text editing equipment.	
Machine Transcription	
Students will:	
1. Identify the advantages and disadvantages of using machine dictation and transcription equipment.	- Keyboard a table listing the advantages and disadvantages
2. Develop effective listening skills for machine transcription assignments.	- Listen to dictation of graduated lengths and develop concentration skills (phrases, sentences, paragraphs)
3. Develop efficient machine transcription operator skills.	- Identify the preparations necessary for transcription and demonstrate the ability to use equipment efficiently
4. Identify appropriate machine transcription follow-up procedures.	- Proofread, correct, prepare envelopes, file copies, materials for signature, enclosures
5. Transcribe simple business correspondence using appropriate language skills for effective machine transcription.	- Students should identify essential language skills for transcription exercises, analyze hard copy containing examples of these skills, practise proofreading and editing

INTEGRATED OFFICE SYSTEMS II
COURSE NAME

SENIOR	GENERAL	ONE
DIVISION	LEVEL	MAXIMUM CREDITS

COURSE DESCRIPTION

Integrated Office Systems II will provide students with an opportunity to consider the operation of a business organization including specific department functions and employee performance criteria. The study of integrated office equipment and procedures will form an integral part of this course.

Prerequisite: Integrated Office Systems I

AIMS

Students will have opportunities to:

1. Develop an understanding of business organization and purpose.
2. Consider the role of specific departments within a business organization.
3. Develop those interpersonal and human relations skills required in a business environment.
4. Practise effective communication skills in an office enviroment.
5. Investigate appropriate personal career paths.
6. Develop keyboarding skills appropriate to their career goals.

INTEGRATED OFFICE SYSTEMS II
COURSE NAME

SENIOR
DIVISION

GENERAL
LEVEL

ONE
MAXIMUM CREDIT

COURSE CONTENT:

Topic No.	Core	Topic Title	Percentage for Emphasis & Evaluation
1	X	The Business Environment: - Organization - Department Organization and Function - Impact of Legislation	10%
2	X	Personnel Management: - Interpersonal Skill Development - Professional Behaviour - Time Management and Productivity - Supervisory Skills	20%
3	X	Integrated Office Equipment Procedures: - Word/Information Processing - Machine Dictation and Transcription - Records Management (Advanced) - Travel - Office Simulation	60%
4	X	Career Planning: - Job Preparation - Standards of Employment and Advancement	10%
			100%

TOPIC NUMBER 3: INTEGRATED OFFICE EQUIPMENT AND PROCEDURES

EMPHASIS/EVA...

Word Information Processing

CORE OBJECTIVES	TEACHERS' NOTES AND SUGGESTED ACTIVITIES
Students will:	
1. Identify the wide variety of information processing equipment available to meet specific business needs.	- Emphasis on systems to include stand alone, shared logic, time-sharing, home or personal and executive computers
2. Identify the basic information processing cycle.	
3. Describe the basic concepts, terminology and methods of processing data.	- Sorting, classifying, storing, calculating, and printing, hardware and software
4. Recognize the purpose and relationship of the data processing cycle to business office functions.	- Refer to the importance of data processing and its relationship to information for daily business operations a) information for regulating business operation b) information for long-range plans c) information requests from outside sources, including customers, creditors, owners, and governments
5. Identify the concepts of integrating data processing and word processing.	- Students could analyze the integration of data processing and word processing
Machine Dictation and Transcription	
Students will:	
1. Develop effective machine dictating skills appreciating the responsibilities of the dictator to speak clearly.	- Practice dictating and transcribing
2. Identify the reasons for centralized dictation and transcription equipment and the variety of equipment available.	
3. Describe the various methods of accessing a centralized system.	- Handwritten material, including shorthand; stenorette; OCR (Optical Character Recognition); telephone (internal and external)

INTEGRATED OFFICE SYSTEMS I
COURSE NAME

SENIOR	ADVANCED	ONE
DIVISION	LEVEL	MAXIMUM CREDITS

RATIONALE

COURSE DESCRIPTION

Integrated Office Systems, at the Advanced level, will provide students with an opportunity to investigate current technological developments and assess their effects on the working environment. Students will identify the personal performance criteria for success in the business community and the supervisory skills and responsibilities needed for success.

Prerequisite: Keyboarding Introduction

AIMS

Students will have opportunities to:

1. Develop research and analytical skills in the study of the business organization and the electronic office.

2. Develop interpersonal and human relations skills important for success in a business environment.

3. Develop effective communication.

4. Identify appropriate personal career plans.

5. Investigate current office procedures and systems.

6. Develop keyboarding skills to meet with specific student needs.

INTEGRATED OFFICE SYSTEMS I
COURSE NAME

SENIOR	ADVANCED	ONE
DIVISION	LEVEL	MAXIMUM CREDITS

Prerequisite - Introductory Keyboarding

COURSE CONTENT:

Topic No.	Core	Topic Title	Percentage for Emphasis & Evaluation
1	X	The Office Enviroment: - The Office Concept and the Changing Work Enviroment - The Structure of Industrial and Service Organizations - Interpersonal Skills - Communication - Decision-Making Skills	15%
2	X	Integrated Office Career Planning: - Standards and Performance - Continuing Education Directions	10%
3	X	Integrated Office Procedures and Systems: - Word Processing - Machine Transcription - Reprographics - Records Management	45%
4	X	Administrative Support Functions - Use of Reference Material - Telephone and Telecommunication - Meetings - Management of Financial Records - Mail Distribution	30%
			100%

TOPIC NUMBER 3: INTEGRATED OFFICE PROCEDURES AND SYSTEMS

EMPHASIS/EVALUATION 30%

Word Processing

CORE OBJECTIVES	TEACHERS' NOTES AND SUGGESTED ACTIVITIES
Students will:	
1. Analyze and compare the various word processing systems.	- Central, individual work stations, personal computers, stand-alones
2. Analyze the responsibilities involved in the various positions within the Word Processing centre.	- Be aware of career opportunities
3. Keyboard, format, edit, revise, store and retrieve business communication on text-editing equipment.	

Machine Transcription

1. Identify the advantages and disadvantages of using machine transcription in an office environment.	
2. Develop effective listening skills for machine transcription assignments.	- Listen to dictation of graduated lengths developing concentration skills (phrases, sentences, paragraphs)
3. Describe efficient machine operator skills.	- Preparations for transcription and use of equipment
4. Identify appropriate machine transcription follow-up procedures.	- Careful proofreading, correction of errors, preparation of enclosures, envelopes, file copies, materials for signature
5. Transcribe memos, letters and short reports using appropriate level of language skills.	- Students should identify essential language skills for transcription exercises, analyze hard copy containing examples of these skills, practise proofreading and editing

Reprographics

1. Analyze and compare reprographic methods considering cost, time, quality and equipment.	
2. Determine the best method of duplication within a variety of situations and circumstances.	
3. Prepare material for copy and make copies demonstrating quality control.	- Typed corrections, cut and paste, organize and arrange layout - Back-to-back run

INTEGRATED OFFICE SYSTEMS II
COURSE NAME

SENIOR	ADVANCED	ONE
DIVISION	LEVEL	MAXIMUM CREDITS

COURSE DESCRIPTION

Integrated Office Systems II, at the Advanced level, will provide students with the opportunity to consider the effects of business organization policies and procedures on the economy of Canada. Students will investigate the operation of an office system, including the interrelationship of specific departments and personnel. They will examine systems and procedures in preparation for a career in the business world.

Prerequisite: Integrated Office Systems I

AIMS

Students will have the opportunities to:

1. Study the relationship of business organizations and specific department functions in an integrated office system.
2. Identify the influence of government policies and labour organizations on the organization of a business.
3. Examine the technological change in the office environment and identify the adjustments required by the personnel involved.
4. Develop interpersonal and human relation skills for work in an administrative support position.
5. Demonstrate effective communication skills in an office environment.
6. Identify career plans.
7. Develop appropriate keyboarding skills in relation to personal career plans.

INTEGRATED OFFICE SYSTEMS II
COURSE NAME

SENIOR	ADVANCED	ONE
DIVISION	LEVEL	MAXIMUM CREDIT

COURSE CONTENT:

Topic No.	Core	Topic Title	Percentage for Emphasis and Evaluation
1	x	The Business Environment - Business Organization - Role of Government, Labour and Business - Office Organization - Employer/Employee Relationships	20%
2	x	Administrative Support - Interpersonal Skill Development - Time Management and Productivity - Business Reports - Travel - Supervisory Responsibilities - Meetings, Seminars, Workshops, Conferences	25%
3	x	Integrated Office Equipment and Procedures - Word/Information Processing - Machine Dictation and Transcription - Records Management (Advanced) - Office Simulation	45%
4	x	Career Planning: - Job Retention and Advancement Directions - Professional Behaviour	10%
			100%

TOPIC NUMBER 2: ADMINISTRATIVE SUPPORT (Cont'd)

Meetings, Seminars, Workshops Conferences

CORE OBJECTIVES:	TEACHERS' NOTES AND SUGGESTED ACTIVITIES
Students will:	
1. Analyze the purpose and importance of formal and informal meetings within a business organization.	
2. Identify correct procedures for conducting a meeting, particularly the responsibilities of the chairperson, the recorder and the secretary.	
3. Identify the purpose and organization necessary to set up a meeting, workshop, seminar or conference.	- Bookings, budget, number and nature of participants, seminar leaders, meals/catering, registration forms and fees, preparation of workshop brochures and packages, equipment required, preparation of reports and news releases

TOPIC NUMBER 3: INTEGRATED OFFICE EQUIPMENT & PROCEDURES — EMPHASIS/EVALUATION 45%

Word/Information Processing

Students will:	
1. Identify the different word processing systems available.	- Standalone, share logic, time-sharing, home or personal computers
2. Analyze the basic word processing cycle.	
3. Identify the function of personnel support systems necessary for effective use of equipment.	- Analyze job descriptions and relate to overall functions of word processing centre
4. Identify and describe methods of processing data.	- Planning, organizing, controlling, printing
5. Identify and describe steps involved in the data processing cycle.	
6. Analyze the integration of data processing and word processing concepts.	

SECTION 6.9.7

KEYBOARDING - BUSINESS APPLICATIONS II
COURSE NAME

INTERMEDIATE	GENERAL	ONE
DIVISION	LEVEL	MAXIMUM CREDITS

COURSE DESCRIPTION

Keyboarding - Applications II will allow students to further develop their keyboarding and communication skill to meet job-entry level expectations. Students will use a variety of office equipment including machine transcribers and automatic text editing equipment to complete their assignments and appreciate the concepts of word processing and the role it plays in the business office.

Prerequisite: Keyboarding: Business Applications I

COURSE AIMS

Keyboarding - Applications II, at the General level, will provide students with opportunities to:

1. Increase keyboarding and communication skill to a marketable level.
2. Effectively use a range of office communication equipment including Word Processing capabilities.
3. Develop the ability to efficiently process business information using an integration of a variety of skills and procedures.
4. Identify career opportunities and plan to take advantage of them.
5. Model business-like habits and attitudes conducive to success on the job.

COURSE CONTENT

Topic No.	Core	Topic Title	Percentage for Emphasis & Evaluation
1	X	Keyboarding Skill Development and Production Work	30%
2	X	Machine Transcription	30%
3	X	Word Processing and Integrated Office Skill Development	30%
4	X	Communication and Employability	10%
			100%

TOPIC NUMBER 1: KEYBOARDING SKILL DEVELOPMENT AND PRODUCTION WORK

EMPHASIS/EVALUATION 30%

CORE OBJECTIVES	TEACHERS' NOTES AND SUGGESTED ACTIVITIES
Students will:	
1. Develop their keyboarding speed and accuracy rate to meet a minimum expectation of 60 gross words per minute with a 3% error rate on an average word count of the best three 5-minute timed writings.	- Materials used for timed writings should be at a syllabic intensity of 1.4
2. Produce error-free or error-corrected business letters, memoranda, reports and simple tables and meet a minimum production standard of 50 words per minute on 10 and 15 minute timings.	- Errors should be corrected as students key the production material - One additional minute should be allowed at the conclusion of the production time to proofread and correct errors
Note: Gross words - Word count with no error penalty deduction. 3% error rate - No more than 3 errors for each 100 words. Minimum objective - 60 gross words per minute with a 3% error rate should be equal to 50% of the maximum evaluation component identified for speed and accuracy. Production timings - The timed keying of business communications, correcting errors and producing mailable copy	- Undetected or uncorrected errors should be penalized at a rate of 20 gross words per error - Materials used for production work should include unformated, handwritten and materials edited for revision

EMPHASIS/EVALUATION 30%

TOPIC NUMBER 2: MACHINE TRANSCRIPTION

CORE OBJECTIVES	TEACHERS' NOTES AND SUGGESTED ACTIVITIES
Students will:	
1. Produce mailable business correspondence, at a rate of 30 w.p.m., using machine transcription equipment.	- Develop speed and accuracy on the equipment as well as ease and confidence with the English language, including spelling, grammar and punctuation rules - Materials should include one and two page letters, business reports and memoranda

APPENDIX G - PROVINCIAL CURRICULUMS--MANITOBA

OFFICE PROCEDURES 302

(pages 19 - 22)

DATA PROCESSING 302

(pages 91 - 97)

GOALS AND OBJECTIVES	TEACHERS' NOTES AND SUGGESTED ACTIVITIES	SUGGESTED MATERIALS
2. identify the services provided by an office; 3. develop an awareness of the relationship between the service(s) an office provides and job descriptions.	Assign the students a research project that determines and lists the services provided by the office/various types of offices. Have the students discuss the list of office services that they prepared and develop a list of job titles required to provide the office services. Discuss the responsibilities of the employees. Write and discuss brief job descriptions. Prepare a bulletin board display of job descriptions.	
V. WORD PROCESSING A. Concepts and Careers The student should be able to: 1. develop an awareness of the concept of word processing;	Define <u>word processing</u>. Trace the historical development of word processing (the conversion of thoughts into readable form) by: 3300 B.C. .....Clay Tablets 1800.....Dictation Units 1868.....Typewriter (Querty) 1932.....Autotypewriter (Paper Tape) 1946.....Computer 1961.....Selectric Typewriter 1964.....Word Processor 1965.....Term <u>Word Processing</u> evolved Assign research projects to deal with "Important Product Introductions for Text Processing" (1868 - the first practical commercial typewriter to the present) or "Some Important Events in Voice Recording" (1876 - (Edison) to the present).	<u>WORD PROCESSING</u> The conversion of thoughts into readable form OR the transformation of written, verbal, or recorded ideas into typewritten or printed documents OR the combination of people, procedures, and equipment that transforms ideas into printed communications and helps facilitate the flow of related office work OR a system of processing written communication by coordinating automated equipment, specialized people, and efficient procedures in an appropriate environment

GOALS AND OBJECTIVES	TEACHERS' NOTES AND SUGGESTED ACTIVITIES	SUGGESTED MATERIALS
2. describe the implications of word processing for employment preparation and career development;	Discuss word processing in relation to the schematic model for the office and the main components of office processes. Identify and discuss the skill and knowledge requirements for word processing. Explain the new emphasis on old skill/knowledge requirements and the introduction of some new skill/knowledge requirements. Emphasize: - verbal communications (telephone, dictation explanation); - written communications (composition, grammar, spelling, punctuation, capitalation, numerical forms); - equipment-related skills (keyboarding, transcribing, dictating, reprographics); - planning, organizing, decision-making skills; - supervision skills (scheduling; coordinating people/equipment/activities/facilities; reviewing procedures; and controls; - business attitudes/personal development.	BASIC OFFICE FUNCTIONS 1. Communication 2. Information acquisition, storage and retrieval 3. Data analysis 4. Coordination of people, Information, budgets and facilities 5. Public relations 6. Management
3. identify emerging career paths in word processing;	Assign a research project to investigate career opportunities. Collect job descriptions and prepare a bulletin board display	Summary Report of National Study of Word Processing Installations in Select Business Organization (Scriven et al.) Word Processing Concepts and Careers (Berglund)
4. understand and describe the fundamental steps in word processing.	Discuss the fundamental steps in word processing.	STEPS IN WORD PROCESSING 1. Origination - how to express ideas 2. Production - how to produce ideas 3. Reproduction - how to make copies 4. Filing - how to save ideas for the future 5. Distributing - how to transmit ideas to destination

GOALS AND OBJECTIVES	TEACHERS' NOTES AND SUGGESTED ACTIVITIES	SUGGESTED MATERIALS
B. Applications of Word Processing The student should be able to: 1. understand and discuss word processing required for dictation and transcription, reprographics, and keyboard applications;	Emphasize the origination of ideas through the dictation of data through the telephone and/or dictation equipment; the production of ideas through keyboarding and transcription; the reproducing of documents through reprographics; the composition and editing of documents at the typewriter.	KEYBOARDING: The manipulation and/or mastery of the keyboard common to typewriters, with applications to computers, 10-key calculators, etc. REPROGRAPHICS: The processing of copies by the use of various reproducing devices OR the science of reproducing documents by using machine such as photocopiers, duplicating equipment, collators, binders, etc.
2. select appropriate techniques for dictation and transcription, reprographics, and keyboarding to solve word processing problems;	Discuss the techniques related to dictation and transcription. Emphasize dictation methods and the application of English skills, proofreading; and editing transcription. Discuss reprographics. Emphasize the preparation of the typewritten and illustrated masters for the dry copying machine and the preparation of masters for development of transparencies. Review keyboarding. Emphasize keyboarding skills, composition and editing at the typewriter for the students with well-developed typewriting skills.	Refer to Manuals for dictation and transcription equipment that would accompany the equipment when purchased. 3M has developed a "3M Workshop for Preparation of Transparencies" that would act as an excellent in-service activity for the teacher.
3. demonstrate and discuss word processing skills related to dictation and transcription equipment, reprographics equipment, and the keyboard.	Have the students dictate and/or transcribe letters, manuscripts, reports, etc. Discuss dictation tips and instructions: general information about equipment; beginning instructions; instructions given during dictation; closing instructions; and additional dictating tips. Have students with well-developed typewriting skills transcribe the letters dictated by students.	Dicta-Typing: A Short Course (Farmer et al.) Instructional Material for Machine Dictation Users, available at the Library, Department of Education, Main Floor, 1181 Portage Avenue, Winnipeg, Manitoba R3G 0T3

GOALS AND OBJECTIVES	TEACHERS' NOTES AND SUGGESTED ACTIVITIES	SUGGESTED MATERIALS
	Emphasize reprographics, the preparation of masters for the dry copying process. Discuss the use of the typewriter, illustrations, diagrams, layout, etc. Have the students design and prepare masters for dry copying and for transparency masters. Emphasize keyboarding composition, proofreading, and editing skills on the electric and electronic typewriter for students with well-developed typewriting skills. Arrange field trips to businesses and assign a research report to be prepared and based on the field trips.	Word Processing: Concepts and Applications (Ellis) Word Processing in the Modern Office (Cecil) Word Processing (Rosen et al.)
VI. ANCILLARY FUNCTIONS AND SERVICES A. Communication The student should be able to: 1. understand the need for and the purpose of various communication ancillary functions and services; 2. identify specific communication ancillary functions and services;	Discuss the importance of the ancillary functions in the communication process to facilitate office processes/procedures. Identify and discuss the use of telephone and postal services as ancillary communication functions and services. Acquaint the students with telephone equipment and services. Invite guest speakers, use films and/or directories from the Manitoba Telephone System. Assign a research project to the students to describe the various types of postal services and classes of mail, including electronic mail. Use a guest speaker, or a field trip to the post office to examine mailing routines.	

GOALS AND OBJECTIVES	TEACHER'S NOTES AND SUGGESTED ACTIVITIES	REFERENCE AND SUPPORT MATERIAL
8. run an inventory program and produce output.	Explain, demonstrate, and have the students complete the following: a) create a master file; b) record changes in inventory resulting from sales, purchases, losses, sales returns, and purchases returns; c) prepare reports from the program/s.	Refer to bibliography for software and programs for an inventory system.
G. General Ledger System The student should be able to:		
1. define general ledger;	Discuss and explain the term general ledger.	GENERAL LEDGER: The system used to provide a complete record of all of the financial transactions of a business
2. explain the purpose of a general ledger system;	Emphasize the importance of maintaining a general ledger system for the purpose of recording data and information related to all the financial transactions of a business.	
3. describe the structure and content of a general ledger system;	Review the definition of a general ledger and the purpose of a general ledger system. Emphasize that a general ledger system uses data from many other accounting systems. Discuss the relationship of the general ledger system to sales, purchases, accounts receivable, accounts payable, inventory, and payroll. Point out that the basic elements of a general ledger system relate to the posting and transferring of all financial transactions to an accounting data base.	Century 21 Accounting, Canadian ed., Gage Educational Publishing, Ltd., Chapters 18-20 Elements of Accounting: A Senior Course, 2nd ed., McGraw-Hill Ryerson, Chapter 5 Century 21 Accounting: Advanced Course, Gage Educational Publishing Ltd., Chapters 2-3
4. identify the procedure for computerizing general ledger systems;	Show the students and/or have them collect examples of general ledger systems. Diagram and/or have the students prepare diagram/s to illustrate the relationship between the general ledger system and other accounting systems. Encourage the students to use the diagram as an aid in the writing of a program in BASIC	Computer Augmented Accounting: Compu-Guide One, 3rd ed., South-Western Publishing Co.

GOALS AND OBJECTIVES	TEACHER'S NOTES AND SUGGESTED ACTIVITIES	REFERENCE AND SUPPORT MATERIAL
	to computerize simple and more complex general ledger systems. Discuss the output a business can obtain from a general ledger system. Emphasize the following main types of output: income statement and balance sheet. Explain the purpose of each of these types of output. Prepare and/or have the students prepare charts, posters, or bulletin board displays of examples of income statements and balance sheets. Have the students compare manual and automated methods for processing data in general ledger systems.	
5. run a general ledger program and produce output.	Explain, demonstrate, and have the students complete the following: a) enter company master information; b) enter account numbers and names; c) enter a variety of accounting transactions; d) prepare trial balance, income statement, balance sheet and other reports available from the program/s.	Refer to bibliography for software and programs for general ledger system.
II. Other Business Applications	NOTE: Complete two business applications from this section. If time is available the students should have the opportunity to complete more of these applications.	
The student should be able to:		
1. recognize other business applications;	Identify and show the students examples of the following business applications: a) word processing; b) records management; c) manufacturing inventory; d) fixed asset inventory; e) financial mathematics (amortization schedules, depreciation, simple and compound interest); f) business simulations (economics, agribusiness, real estate, insurance, airline,	Examples of business applications Accounting textbooks Business, financial, and mathematics textbooks Data Processing with Applications, 2nd ed., Reston Publishing Company, Inc., Chapter 20

GOALS AND OBJECTIVES	TEACHER'S NOTES AND SUGGESTED ACTIVITIES	REFERENCE AND SUPPORT MATERIAL
	stock market applications, marketing applications).	
2. explain the purpose of the business applications;	Have the students explain the uses businesses make of the business applications.	
3. describe the structure and the content of the business applications;	Have the students locate examples of the business applications, list problem-solving steps, prepare flowcharts, and follow the problem-solving steps and flowcharts to write programs in BASIC to computerize the applications. Encourage the students to complete simple and complex projects. Arrange tours to obtain and/or invite guest speakers to provide information about the computerizing of business applications.	
4. run a program and produce output for the business applications.	Explain, demonstrate, and have the students run and produce output for two business applications.	Refer to bibliography for software/programs for business applications.

Data Processing 302

Textbooks

De Rossi, Claude. Learning BASIC Fast. rev. ed. Reston, Virginia: Reston Publishing Company, Inc., 1979. (Distributed by Prentice-Hall Canada, Incorporated.)

Pillsbury, Wilbur, F. Computer Augmented Accounting: CompuGuide One. 3rd ed. Cincinnati, Ohio: South-Western Publishing Company, 1979.

Shelly, Gary B., and Thomas J. Cashman. Introduction to Computers and Data Processing. Fullerton, Calif.: Anaheim Publishing Company, 1980.

Stern, Nancy B., and Robert A. Stern. COBOL Programming. 2nd ed. Toronto, Ontario: John Wiley and Sons, Inc., 1975.

Reference Books

D'Amico, Victor L., and Maurice D. Obonsawin. Basic Accounting. Toronto, Ontario: Copp Clark Pitman, 1978.

Kaluza, H. J. Accounting: A Systems Approach. Scarborough, Ontario: McGraw-Hill Ryerson, Ltd., 1976.

Kaluza, H. J., and W. G. Leonard. Elements of Accounting: A Senior Course. 2nd ed. Scarborough, Ontario: McGraw-Hill Ryerson, Ltd., 1979.

Landry, P., et al. Century 21 Accounting: Advanced Course. Canadian ed. Agincourt, Ontario: Gage Educational Publishing, Ltd., 1978.

Pansegrau, Gary E., et al. Century 21 Accounting. Canadian ed. Agincourt, Ontario: Gage Educational Publishing, Ltd., 1978.

Pillsbury, Wilbur F. Instructor's Manual: Computer Augmented Accounting: CompuGuide One. 3rd ed. Cincinnati, Ohio: South-Western Publishing Company, 1979.

Stern, Nancy B., and Robert A. Stern. Instructor's Manual: COBOL Programming. 2nd ed. Toronto, Ontario: John Wiley and Sons, 1975.

Note: For additional reference works, refer to the bibliography for Data Processing 202.

Periodicals

Refer to bibliography for Data Processing 202.

Audio-Visual Materials

The following audio-visual materials are available from Coronet Instructional Media, Ltd., 200 Steelcase Road East, Markham, Ontario L3R 1G2.

1. Filmstrips with Cassettes and Handbook
   a) Advanced BASIC Techniques
      - String Functions (Part I)
      - Data Handling and Arrays (Part II)
      - Computer Graphics (Part III)
      - Advanced Mathematical Functions (Part IV)

The following audio-visual materials are available from Prentice-Hall Media, 1870 Birchmount Road, Scarborough, Ontario M1P 2J7:

1. Colour Filmstrips with Cassettes and Program Guides
   a) Computer Programming
      i) Introduction to Programming
         - Advanced Programming Techniques
      ii) Programming in BASIC
         - Advanced BASIC Techniques
      iii) Programming in COBOL
         - Introduction
         - The First Three Divisions
         - The Procedure Division
         - Routines
         - Processing Tables

2. Colour Filmstrips with Cassettes, Program Guides, and Reproducible Masters

a) Word Processing

i) An Introduction to Word Processing

- The Need for Word Processing
- Technical Developments
- Office Automation

ii) Generating Documents

- Short and Major Documents
- Standard Documents, Repetitive Documents and Forms

iii) Keyboarding and Editing

- Keyboarding Short Documents
- Keyboarding Major Documents
- Keyboarding Standard Documents
- Keyboarding Repetitive Documents and Forms

iv) Distribution and Retention

- Document Distribution
- Document Retention

Note: For additional audio-visual materials refer to the bibliography for Data Processing 202.

Programs and Software

The following computer teaching projects listed in the Student Workbook and Study Guide to Accompany Introduction to Computers and Data Processing are available for PET Commodore and TRS-80 microcomputers. Send one 5 1/4 inch, double density, single sided diskette to Curriculum Development and Implementation Branch, Room 411, 1181 Portage Avenue, Winnipeg R3G 0T3, for copies of the projects.

Computer Teaching Projects from Student Workbook and Study Guide to Accompany Introduction to Computers and Data Processing

- Project 7, Chapter 8
- Project 11, Chapter 7

The following programs are available on the Manitoba Schools Computer Network Library. Refer to The Programme Library Users' Manual for information:

- CAA (runs programs for Computer Augmented Accounting)
- CAA2 (alternate version of CAA that allows for the saving of disk files)
- CODOLP (inserts a file and then compiles and executes a COBOL program)
- ECO2C (plots supply and demand curves with calculations of equilibrium position and elasticities of the curve)
- TRUINTC (calculates true annual interest rate by means of convergence)
- FARMP (simulates a prairie grain farm in Canada)
- FARMFIX (teacher program to allow changes to FARM data files)

The following software packages for TRS-80, Apple, and PET microcomputers are available from and are described in a catalogue from Micro Learningwave, P.O. Box 2134, N. Mankato, Minnesota 56001:

1. TRS-80 Business Package I (ED003) (diskette or cassette tape)

   - Accounting I
   - Accounting II
   - General Ledger
   - Depreciation

2. TRS-80 Business Package II (ED004) (diskette or cassette tape)

   - Annuities
   - Loan Amortization
   - Bank Reconciliation
   - Stock Market Simulation

3. TRS-80 Business Package III (ED013) (diskette or cassette tape)

   - Chart of Accounts Entry
   - Journal Entry
   - Report Print

4. TRS-80 Computerized Farm Records (018)

   - Farmware

5. Apple II Business Package I (AP051) (diskette)

   - Loan Amortization
   - Bank Reconciliation
   - Stock Market Simulation
   - Depreciation

6. Apple II Business Package III (AP052) (diskette)

   - Chart of Accounts Entry
   - Journal Entry
   - Report Print

7. Apple II Computerized Farm Records (AP054) (diskette)

   - Farmware

8. PET Business Package I (PT003) (cassette tape)

   - General Ledger
   - Depreciation

9. PET Business Package II (PT004) (cassette tape)

   - Annuities
   - Loan Amortization
   - Bank Reconciliation
   - Stock Market Simulation

The following software packages for TRS-80 microcomputer, prepared by Radio Shack, Tandy Corporation, are available from local Radio Shack stores:

- Business Mailing List (26-1558)
- Scripsit Word Processing System (26-1563)
- Profile (26-1562) (accesses names, addresses, accounts, personnel records)
- General Ledger I (26-1552)
- Accounts Receivable (26-1555)
- Accounts Payable (26-1554)
- Disk Payroll (26-8556)
- Inventory Control I (26-1553)
- Manufacturing Inventory Control System (26-1559)
- Fixed Asset Accounting (26-1560)
- Standard and Poor's Stockpack System (26-1507)
- Profile III Plus (26-1592)
- Model III VisiCalc (26-1569)

The following software packages for various types of microcomputers, prepared by BPI Systems, Inc., Austin, Texas, are available from Computerland stores:

1. Apple II Microcomputer (48K)

   General Ledger Accounting System handles general ledger accounts, accounts payable accounts, accounts receivable accounts, payroll accounts, and cash disbursement accounts. This software package consists of a comprehensive manual and the following four disks:

   - Disk No. 1 - The Data Entry Disk has commands for entering data to various journals in the system, printing the journals, posting the ledgers, preparing financial statements, and closing the books.

   - Disk No. 2 - The Posting Disk has commands for posting all entries to the various ledgers after sorting by account number; prints the general ledger, subsidiary ledgers, payroll ledger, profit and loss statement and balance sheet.

   - Disk No. 3 - The Maintenance Disk has commands for opening a new set of books and setting up a new chart of accounts.

   - Disk No. 4 - This is a data disk with a sample business entered on it for a complete set of books.

2. Commodore PET/CBM Microcomputer (32K)

   General Ledger Accounting System is similar to the General Ledger Accounting System for the Apple II Microcomputer. This software package requires a BPI No. 3 chip, and consists of a comprehensive manual and the following three disks:

- Disk No. 1 - The Data Entry Disk
- Disk No. 2 - The Posting Disk
- Disk No. 3 - A Corner Grocery Store is a data disk for a complete set of books.

3. IBM Personal Computer (64K)

General Accounting is similar to the General Ledger Accounting System for the Apple II Microcomputer. This software package consists of a comprehensive manual and the following four disks:

- Disk No. 1 - The Data Entry Disk (6936471)
- Disk No. 2 - The Posting Disk (6936475)
- Disk No. 3 - The Maintenance Disk (6936480)
- Disk No. 4 - Future Corporation Data (6936485) is a data disk for a complete set of books.

The following software package, prepared by Personal Software, Inc., is available from Computerland stores for these microcomputers: Apple II (48K), Commodore PET/CBM (32K), and IBM Personal Computer (64K):

VisiCalc features an electronic worksheet for solving various number problems related to the following business functions:

- Forecasting and projecting: cash flow, sales, inventory, production and purchasing levels, product/market growth, income statements, balance sheets.

- Analyzing: stock fluctuations, profit and loss statements, structural designs, real estate investments, personal expenditures, buy vs. lease, agricultural crop returns.

- Computing: trust fund reports, seller's and buyer's closing costs, pricing, taxes, proposals, job costs and material estimates.

- Planning: new business ventures, budgets, workloads, advertising media schedules, office space expansion, five-year plan, pricing.

The following software is available from Prosoft, Box 839, North Hollywood, Calif. 91603:

Word processing for TRS-80 Models I and III

- New Script

The following word processing package and project is available from Beryl Bingham, Elmwood High School, 505 Chalmers Avenue, Winnipeg, Manitoba R2L 0G4:

- Word Processing for Grade 12 Students Using the Commodore PET Microcomputer

Software packages and program projects are available from the following user groups:*

- The Winnipeg Micro-80 User's Group
- Apple User's Group
- PET User's Group

*Information about meeting times and places for the above groups is available by calling 474-8574 or writing to Room 328, Faculty of Education, University of Manitoba, Winnipeg, Manitoba.

Note: For additional programs software refer to the bibliography for Data Processing 202.

APPENDIX H - PROVINCIAL CURRICULUMS--SASKATCHEWAN

COMPUTER APPLICATION 10, 20 AND
COMPUTER SCIENCE 10, 20 30

(pages 26 - 31)

COMPUTER APPLICATIONS 10

Course content includes:

- objectives selected from the General Objectives (as defined and recommended in the previous section)
- word processing objectives
- electronic spreadsheet objectives.

WORD PROCESSING SKILLS/CONCEPTS/TERMINOLOGY (REQUIRED)

Students will be able:

CA-WP-01A

To perform the following fundamental procedures in operating selected word processing packages:

- load and run the program
- access disk directory
- load existing text file
- save text in memory to disk file
- prepare the printer for processing output
- direct word processing output to a printer.

CA-WP-02A

To explain the function of imbedded formatting commands and control characters as these are appropriate to the processing text.

CA-WP-03A

To perform the following basic text-entry procedures:

- use the keyboard features and command keys as required (e.g., control key, escape key, cursor controls)
- enter appropriate controls to define margins, length of physical page, length of printed page, and line spacing
- enter text with attention to standard paragraphing style.

CA-WP-04A

To perform the following editing procedures:

- move the cursor about the screen and through text (stepping, scrolling, etc.)
- delete and insert characters
- delete lines of text and insert space for addition of text
- display formatted text to the videoscreen
- identify and correct errors in text.

CA-WP-05A

To demonstrate the ability to transfer a block/range of text:

- from one location to another within the text in memory
- from text in memory to disk file
- from text saved in a disk file to another text file.

CA-WP-06A

To enter text via the keyboard from copy provided, then proofread and correct errors as necessary to produce error-free output.

CA-WP-07A

To implement the following text formatting controls:

- centre text
- indent text
- adjust margins within the document
- change margins
- justify text.

CA-WP-08A

To demonstrate skill in using the search and replace feature and related procedures (e.g. find, hunt) as implemented.

CA-WP-09A

To demonstrate skill in composing text at the keyboard (e.g., an essay of a few paragraphs) and correcting errors in both spelling and sentence/paragraph structure to meet expectations.

CA-WP-10A

To implement the following page-oriented controls:

- provide paged output suitable for different-sized pages
- force a new page unconditionally and conditionally
- provide page numbers automatically
- implement footers and headers.

CA-WP-11A

To demonstrate skill in composing, entering, editing and processing a business letter in accordance with a standard business style.

CA-WP-12A

To demonstrate awareness of similarities and differences among word processing packages through hands-on introduction to a second word-processor to the degree defined by the core objectives.

CA-WP-13A

To describe, using appropriate terminology, some of the similarities and differences between word processors.

CA-WP-14A

To enter, edit, and process the text for an essay or report written by the student for submission and grading purposes (the subject of the paper may relate to the computer class or may meet requirements for some other class in which the student is currently enrolled).

EXTENDED WORD PROCESSING SKILLS/CONCEPTS/TERMINOLOGY (SUPPLEMENTARY)

Students will be able:

CA-WP-15A

To demonstrate the ability to link files as is necessary to print a lengthy document.

CA-WP-16A

To implement variable block replacements as required to prepare form letters.

CA-WP-17A

To use extended editing features as available such as phrase-oriented commands (name, delete, copy, change case, etc.) and/or column commands (add/subtract, sort, move column, etc.).

CA-WP-18A

To implement special printer features as available (bold face, enhanced character size, underline, change pitch, change font, etc.) and implement special characters (e.g., super-/sub-scripts, non-keyboard characters).

CA-WP-19A

To implement a spelling checker program.

ELECTRONIC SPREADSHEET SKILLS/CONCEPTS/TERMINOLOGY (REQUIRED)

Students will be able:

CA-SS-01A

To identify software and hardware requirements for running electronic spreadsheet packages on a microcomputer (including installation of copy protection devices, if any; expectations for program back-up), and perform required procedures for loading and running the program.

CA-SS-02A

To use the following terminology, as appropriate, to describe a variety of basic procedures with the spreadsheet:

- control panel, prompt line, edit line, entry contents line
- window, row, column
- entry position, coordinates.

CA-SS-03A

To enter a given set of labels and integer (or dollars and cents) data to the spreadsheet and demonstrate skill in associated procedures, as appropriate to the program:

- goto command
- inserting, deleting, editing
- backing-out-of-input, escape-from-input
- use of appropriate procedures for fixing an entry to a position.

CA-SS-04A

To compose or set-up spreadsheet display involving integer (or dollars and cents) data and variables (formulas) representing an application of the spreadsheet to problems of relevance to the student.

CA-SS-05A

To modify display of the spreadsheet as follows:

- change width of columns
- move entries to new locations on the spreadsheet by row or by column.

CA-SS-06A

To develop skill in entry of variables and formulas using the cursor-pointing mode in the context of student-generated spreadsheet solutions.

CA-SS-07A

To utilize an existing spreadsheet template or model, adapting as appropriate, to solve a particular type of application-problem.

CA-SS-08A

To execute spreadsheet procedures associated with saving and loading data in 'sheet-format' to and from disk storage, including (as appropriate):

- execution of the clear-workspace command
- use of appropriate file-naming conventions
- use of disk-preparation procedures
- awareness of conditions that cause an overwriting of existing files
- procedures to be used when using more than one disk drive
- default conditions when file is not specified
- use of delete-file procedure.

CA-SS-09A

To demonstrate understanding of the relationships between constants and calculated values on sample spreadsheets by predicting the effects of recalculations in cases where changes are introduced to constants.

CA-SS-10A

To output a spreadsheet to the printer, in whole or in part.

CA-SS-11A

To control formatting of data within entry positions by selecting format mode e.g., dollars and cents or integer mode, and left and right justification.

CA-SS-12A

To use one or more of the built-in functions of the spreadsheet (e.g., @sum, @min, @max, @count, etc., or equivalents).

CA-SS-13A

To insert rows/columns, to delete rows/columns and to use the split screen capabilities of the spreadsheet program (if available).

CA-SS-14A

To design spreadsheet solutions (involving implementation of core spreadsheet functions) to a problem of relevance to the student.

CA-SS-15A

To design and implement a template as an aid to the solution of a class of problems of relevance to the student.

EXTENDED ELECTRONIC SPREADSHEET SKILLS/CONCEPTS/TERMINOLOGY (SUPPLEMENTARY)

Students will be able:

CA-SS-16A

To transfer data from one spreadsheet to another spreadsheet and, where possible, to a word processor.

CA-SS-17A

To investigate cases where a change in order of spreadsheet calculation (by row or by column) yields differing values, and to demonstrate ability to guard against design errors due to order of calculation.

CA-SS-18A

To utilize a look-up table.

CA-SS-19A

To discuss efficiency strategies for using the spreadsheet space to best advantage.

CA-SS-20A

To implement graphical display of data, as available with the spreadsheet package in use.

CA-SS-21A

To demonstrate awareness of similarities and differences among spreadsheet packages through hands-on introduction to a second spreadsheet package.

APPENDIX I - PROVINCIAL CURRICULUMS--ALBERTA

OFFICE PROCEDURES 10-20-30

(Module 5, pages 19 - 21)

BUSINESS EDUCATION 10-20-30
OPTIONAL MODULES

(Modules 14, and 15, pages 43 - 45)

BUSINESS EDUCATION MATRIX

(15)* TYPEWRITING	(10)* SHORTHAND	(10)* OFFICE PROCEDURES	(10)* BASIC BUSINESS
C 1. Keyboarding	C 1. Shorthand Theory 1	C 1. Structure of the Business Office	C 1. Canadian Business
C 2. Keyboarding, Centering and Tabulation	C 2. Shorthand Theory 2	E 2. Personnel in the Business Office	C 2. Personal Financial Planning
C 3. Letters & Essays	C 3. Shorthand Theory 3	E 3. Business Communication	E 3. Small Business Management I
C 4. Reports	E 4. Shorthand Theory, Dictation & Transcription 1	E 4. Records Management	E 4. Economic Concepts
C 5. Letters & Tables	E 5. Shorthand Theory, Dictation & Transcription 2	E 5. Information Processing *	E 5. Consumer Credit
C 6. Manuscripts	E 6. Speed & Transcription Skill Building 1	E 6. Clerical Routines	E 6. Management Techniques
C 7. Tables, Business Forms, & Financial Reports	E 7. Speed & Transcription Skill Building 2	E 7. Secretarial Routines	E 7. Insurance
C 8. Business Correspondence	E 8. Speed & Transcription Skill Building 3	E 8. Office Specialties I	E 8. Small Business Management II (Simulation)
E 9. Specialized Production Applications	E 9. Speed & Transcription Skill Building 4	E 9. Office Specialties II	
E 10. Production Projects & Review	E 10. Speed & Transcription Skill Building 5	E 10. Office Simulation	
E 11. Professional Applications I			
E 12. Professional Applications II			
E 13. Simulation I			
E 14. Simulation II			

(13)* ACCOUNTING	(10)* MARKETING	(15)* COMPUTER PROCESSING	(30) OPTIONAL BUSINESS EDUCATION 10, 20, 30
C 1. Basic Accounting Concepts	C 1. World of Marketing	C 1. Introduction to Computers	E 1. Business Communication - Development
C 2. Journalizing and Posting	E 2. Marketing Research	C 1a. Overview of Intro. Programming Language	E 2. Business Communication - Practice
C 3. Completing the Accounting Cycle	E 3. Distribution of Goods and Services	C 2. Computers and Society	E 3. Business Communication - Integration
C 4. Merchandise Accounting	E 4. Purchasing & Controlling Merchandise	C 3. Program Design	E 4. Business Calculation 1
C 5. End-of-Year Adjustments & 8-Column Worksheets	E 5. Advertising and Sales Promotion	E 4. Overview of Software	E 5. Business Calculation 2
E 6. Optional Accounting Tasks	E 6. Salesmanship	E 5. Applications: Data Entry	E 6. Business Calculation 3
E 7. Voucher System and End-of-Year Adjust.	E 7. Display	E 6. Applications: Word Processing	E 7. Record Keeping 1
E 8. Departmentalized Accounting	E 8. Pricing and Financial Activities	E 7. Applications: Simulations	E 8. Record Keeping 2
E 9. Partnership and Corporation Accounting	E 9. Research Module	E 8. Fundamentals of Input/Output	E 9. Record Keeping 3
E 10. Cost Accounting		E 9. Introduction to Advanced Computer Program. Techniques	E 10. Business Research Project
E 11. Financial Analysis		E 10. Advanced Computer Program. Techniques	E 11. Goal Setting and Career Development
E 12. Accounting Simulation 1		E 11. Extended Programming Project	E 12. Dicta Typing 1
E 13. Accounting Simulation II: Computerized Accounting		E 12. Graphics	E 13. Dicta Typing 2
		E 13. Systems Analysis and Program Development	E 14. Word Processing 1 *
		E 14. Intro. to Second (High Level) Programming Language	E 15. Word Processing 2 *
		E 15. Applications in Second (High Level) Programming Language	E 16. Business Simulation
		E 16. Extended Project in Second (High Level) Language	
		E 17. Machine/Assembly Language	

dits available.

e prerequisite to elective modules

Revised 83 08 15

MODULE 5: INFORMATION PROCESSING

Status: Elective
Prerequisite: Module 1
Typewriting: Module 5 (recommended)

Purpose: To enable the student to understand the routines related to processing of information through the study of procedures, equipment, and people.

Notes: The emphasis of this module is on developing an awareness of the CONCEPTS related to word and data processing. Word Processing I and II (from the Optional strand) should be used for developing operator skill on word processing equipment.

Equipment: It is recommended that students have an access to dictation equipment and data and/or word processing equipment.

TOPIC	LEARNING TASKS	TEACHING NOTES
	The student will:	
Development of Electronic Information Processing	review the history of processing information	
	recognize that technological advances and increased labor costs have promoted the use of electronic processing of information	
	become aware of the wide variety of information processing equipment available to meet the specific needs of business and industry	
	understand the basic information processing process - input, output, storage, process, and distribution	
Terminology	understand the meaning of and be able to apply terms specific to the procedures and technology of information processing	
Organizational Concepts for Information Processing Centers	compare traditional and modern office organization	Prepare a diagram of information processing centers
	recognize the basic information processing systems	
	explain the personnel support systems necessary to use the equipment efficiently	
Information Processing Equipment	recognize the function of various pieces of information processing equipment	
	understand the relationship of equipment to input, output, storage and distribution of information	

MODULE 14: WORD PROCESSING 1

Status: Elective
Prerequisite: None

Purpose: To introduce the student to the use of text editing equipment and develop skill in the basic functions of word processing.

Notes: This module must be taught on text-editing equipment which has a minimum of 32K memory. Recommended student-machine ratio is 1 to 1.

Recommendation: Students planning to develop word processing skills for job-entry should have a prerequisite of Typewriting, Modules 1-8.

TOPIC	LEARNING TASKS	TEACHING NOTES
	The student will:	
Terminology	understand and be able to apply appropriate terms related to word processing	
Equipment	identify the parts of the word processor; for example, display, screen, diskette, printer, central processing unit, and keyboard	
Care of Hardware and Software	recognize the importance of proper care and maintenance of hardware and software and demonstrate proper procedures when handling diskette, changing ribbons/print wheels, loading paper, and storing diskettes	
Use of Vendor Support Manuals	become familiar with and understand the use of vendor manuals refer to vendor manuals as necessary	
Input Procedures	recognize and demonstrate efficient procedures for input of information and data	
Format Functions	identify and demonstrate the proper use of format functions; such as, tabs, margins, cursor position, center position, page number, line number, document name, and diskette name	

TOPIC	LEARNING TASKS	TEACHING NOTES
Production Applications	create documents in mailable form from a variety of source documents in letter and manuscript format	
Editing and Correction Functions	revise documents by inserting, deleting, moving, and searching change document format by adjusting margins, line format, tabulation settings, and page formats	
Storage and Management of Input	name, rename, and store documents name, rename, and store diskettes delete documents and clear diskettes recognize the importance of maintaining reference documents for electronically stored material	
Output Procedures	be able to produce mailable single and multi-page documents in an efficient way understand the procedures for pagination, justification, and hyphenation demonstrate efficient procedures in retrieval of diskette contents through visual and print displays	
Duplication Procedures	demonstrate proper procedure for duplication of information for back-up storage	
Specialized Equipment Features	become familiar with the special features available on particular equipment in use, such as spell function and graphics	

MODULE 15: WORD PROCESSING 2

Status: Elective
Prerequisite: Word Processing I, Module 14.
Recommend: Typewriting Modules 1-8.

Purpose: To develop skills in the efficient use of text editing equipment through appropriate production application.

Notes: This module must be offered on text-editing equipment which has a minimum of 32K memory (recommended one student to each machine).

TOPIC	LEARNING TASKS	TEACHING NOTES
	The student will:	
Procedures and Process	continue to demonstrate correct word processing procedures as introduced and developed in Module 14: Word Processing 1	
Use of Equipment and Resources	demonstrate proper care of hardware and software make appropriate use of reference materials	
Production Applications	prepare a variety of material utilizing all the functions of the word processor in the production of letters, manuscripts, and business reports, business and statistical tables, business forms and labels produce documents pertaining to specialized area of business such as: insurance, legal, medical and petrochemical demonstrate proper use of list processing, table generation, and multiple-command functions	
Editing and Revision	use available correction and revision functions in an efficient manner	
Storage of Documents	store, recall, merge, and rename documents efficiently	

TOPIC	LEARNING TASKS	TEACHING NOTES
Information Processing Equipment (cont'd)	become aware of the needs and problems related to having information processing equipment in the office	
Input Procedures	understand the use of the various input devices - portable units - desktop units - central systems - telephone tie-ins demonstrate the proper procedures for inputing information on dictation equipment evaluate recorded dictation for proper dictation techniques including providing all necessary information and use proper editing skills dictate material and instructions to another person on a person-to-person basis and on a machine	
Proofreading and Editing	recognize the importance of accurate proofreading identify and correct common errors within text and format demonstrate efficient proofreading skills using: - paperbail method - comparison of copy to the original - copyholding - visual screen use accepted proofreading symbols develop facility in accurate and efficient proofreading skills	
Storage of Information	give reasons for establishing a filing system define the terms: logging, log sheet, mark code list steps in logging material	

TOPIC	LEARNING TASKS	TEACHING NOTES
Storage of Information (cont'd)	understand how a mark code at the beginning and end of each document aids in efficient retrieval keep a log of materials transcribed for a designated period explain how a library of recorded material is established explain how to retrieve stored information understand the importance of environmental controls define terms related to file handling information processing equipment develop awareness of the importance of efficient retention procedures	
Reproduction	become aware of the variety of equipment available to the business office to reproduce information decide which method of duplication is most suitable within a variety of situations and circumstances	
Distribution	demonstrate awareness of the wide variety of distribution networks available for transmitting information internal to the office and external to the office	

APPENDIX J - CURRICULUM OUTLINE, H. BEARG STUDY

WORD PROCESSING COURSE

H. Bearg Study

Rationale

Businesses are rapidly going to sophisticated word processing equipment in their offices, thus making the current training available in the high schools inadequate. We are still training for offices of the 1950's and 60's.

Word processing is not a fad which will disappear. It will continue to develop and expand at a rapid pace. Business educators need to train students to function efficiently in the traditional office but also to prepare them to adapt to new systems being used.

According to the Occupational Outlook Handbook, the top growth occupation is that of the secretary for the 1980-1985 in Idaho. New career paths for both males and females are being opened through word processing systems. We need to make changes in the curriculum to keep pace with the business world.

Goals

The goals of this course are:

1. To study word processing concepts and terminology
2. To develop an awareness of the changing office environment
3. To acquaint students of career opportunities in the office
4. To provide hands-on equipment training in cooperating businesses

Specific Objectives

1. To provide students with basic understanding of the key ideas of word processing
2. To introduce students to word processing and other business vocabulary
3. To teach students about today's changing office careers
4. To introduce students to the equipment of word processing and its basic operation (function, capabilities, and operating know-how)
5. To improve basic English skills of grammar, punctuation, and spelling
6. To develop good proofreading and editing skills
7. To develop acceptable machine transcription skill
8. To learn effective dictation procedures
9. To develop personal qualities and human relations skills desirable for job satisfaction and success on a job

Outline of Course

The course will be a one-semester course for seniors.

Prerequisites: Minimum of 1 year of Typing with a rate of 40 words per minutes on a 5-minutes timed write. Business Communications would be helpful.

Topics

1. Word processing concepts and terminology
2. Word processing equipment--kinds and capabilities
3. Career concepts in word processing
4. Machine Transcription
   a) Grammar, spelling, punctuation, word division
   b) Proofreading
   c) Editing
5. Dictation and letter composition
6. General office attitudes and personal relations skills
7. Word processing simulation
8. Hands-on machine training in cooperating local businesses

Teaching Procedures

1. Lectures
2. Discussions
3. Role playing
4. Small group activities
5. Films
6. Demonstrations by vendors
7. Guest speakers from word processing centers
8. Field trips to word processing centers
9. Machine transcription--son transcribers
   a) Proofreading/editing exercises
   b) Grammar, spelling, punctuation review
10. Word processing simulation
    a) Training on Electronic 75 typewriter in classroom
    b) Practice Set
11. Lab Practice

Introductory Hands-on Machine Training in cooperating offices:

1. 20 hours in 2-hour sessions
2. After school hours or as arranged by supervisor of the word processing center
3. No additional credit or pay for students' training period
4. Supervisors will volunteer their time and knowledge to instruct and train students during pilot course

Evaluation Plan:

1. Evaluation of the course by cooperating word processing instructors
2. Evaluation of the course by the students
3. Follow-up of students
4. State board for Vocational Education evaluation of program

APPENDIX K - LETTERS TO UNIVERSITIES: BUSINESS TEACHER EDUCATORS

CORRESPONDENCE WITH UNIVERSITIES TO OBTAIN COURSE OUTLINE OF BUSINESS TEACHER EDUCATION PROGRAM

UNIVERSITY	NAME	REPLY RECEIVED	NO REPLY	COURSE OFFERED YES	COURSE OFFERED NO
Memorial U. of NF	F. Riggs	X		X	
Saint Mary's	Michael MacMillan	X			X
St. Francis Xavier		X			X
Mount St. Vincent	Joan M. Ryan	X		X	
NB	D. Beebe	X		X	
Sherbrooke	M. Stringer	X			X
McGill	June Cooper	X		X	
Western ON		X		X	
Toronto	R. B. Wilson	X		X	
Ottawa	Arden Walther	X		X	
RRCC	Louise Falconer	X		X	
MB	G. Porozny	X		X	
Regina	C. Kesten	X		X	
Lethbridge	H. M. Fisher	X		X	
AB		X		X	
BC	Shirley Wong	X		X	
TOTAL		16		12	4

Dear Sir or Madam:

I am currently working on my thesis for my master's degree at the University of Manitoba. My thesis topic deals with word processing education. I am interested in learning about the business teacher education programs in each Canadian province.

Would you please send me a copy of the course outline requirements for business teacher education at your university? Any other information you may have which might help me would also be much appreciated.

Thank you for your cooperation.

Yours for business education,

Eva Brown

WINNIPEG, MB R
1984 02 23

Dear Sir or Madam:

About one month ago, I wrote to you requesting some information about your business teacher education program. I have not heard from you so I am writing to you again in the event that the first letter was lost in the mail.

I am currently working on my thesis for my master's degree at the University of Manitoba. My thesis topic deals with word processing education. I am interested in learning about the business teacher education programs in each Canadian province.

Would you please send me a copy of the course outline requirements for business teacher education at your university? Any other information you may have which might help me would also be much appreciated.

May I hear from you soon? Thank you very much for your cooperation.

Yours for business education,

Eva Brown

WINNIPEG, MB R
1984 04 13

I am writing to you to request some assistance in research for my master's thesis. I am doing graduate work at the University of Manitoba in the area of word processing.

I wrote to you on February 23, 1984 and have not heard from you as yet. I am wondering if perhaps the letter was lost or misplaced.

Would you please send me a copy of the course outline requirements for business teacher education at your university? Any other information you may have which might help me would be much appreciated.

May I hear from you soon? Thank you very much for your cooperation.

Yours for business education,

Eva Brown
Graduate Student
The University of Manitoba

APPENDIX L - LETTERS TO BUSINESS EDUCATION CONSULTANTS

CORRESPONDENCE WITH BUSINESS EDUCATION CONSULTANTS
TO OBTAIN A LIST OF BUSINESS EDUCATORS
AND CURRICULUM OUTLINES

CITY/ PROVINCE	NAME	REPLY RECEIVED	NO REPLY	INFO/WP OFFERED YES	INFO/WP OFFERED NO
St. John's, NF	Patricia Davis	X		X	
Charlottetown, PE	Gordon Bernard	X		X	
Halifax, NS	Brian P. Dwyer	X		X	
Fredericton, NB	Arnold McPherson		X		
Montreal, PQ	Suzanne Roth	X		X	
Montreal, PQ	Mary Sullivan	X			X
Toronto, ON	Tom Tidey	X		X	
London, ON	Alan White	X		X	
Scarborough, ON	Trevor Baker	X		X	
Mississauga, ON	Lily Kretchman	X		X	
Winnipeg, MB	Isabella Dryden	X		X	
Regina, SK	Frank Bellamy	X		X	
Edmonton, AB	Steven Kashuba	X		X	
Edmonton, AB	Sharon Pisesky	X		X	
Edmonton, AB	Fay Ruttan	X		X	
Calgary, AB	Sharon Prather	X		X	
Calgary, AB	Ray Harris	X		X	
Vancouver, BC	Robert Peacock	X		X	
TOTAL		16	1	15	1

Winnipeg, MB R
1984 02 10

Dear Business Education Consultant:

I am currently working on my thesis for my master's degree at the University of Manitoba. My thesis topic deals with word processing education. I am interested in learning about the business education programs in each Canadian province.

I am writing to you to ask you to assist me in learning about the word processing curriculum of your province. Would you please send me a copy of the word processing curriculum for your province? Also, would you please supply me with the names and addresses of teachers teaching word processing in your province--either as an independent word processing course or word processing as part of another course e.g. Typewriting.

Any other information which you think might be useful to me would be much appreciated.

I thank you in advance for your cooperation. Your help is greatly appreciated.

Yours for business education,

Eva Brown
Graduate Student

WINNIPEG, MB R
1984 01 20

Dear Sir or Madam:

I am currently working on my thesis for my master's degree at the University of Manitoba. My thesis topic deals with word processing education. I am interested in learning about the business education programs in each Canadian province.

Would you please send me a copy of the curriculum outline for business education in your province? Please include information about your word processing education program.

Would you also please send me the list of business education teachers in your province listing the subjects they teach and at which school they are currently teaching.

Any other information which you think would help me in my studies wold also be greatly appreciated. Thank you very much for your cooperation.

Yours for business education,

Eva Brown

WINNIPEG, MB R.

Dear Sir or Madam:

Would you please send me a copy of the curriculum outline for your province for the subjects office procedures, typewriting, and word processing.

I am doing a comparison of these business education courses and would very much appreciate receiving this information from you.

Thank you for your help.

Yours for business education,

Eva Brown

APPENDIX M - LETTERS TO PILOT COMMITTEE

WINNIPEG, MB R
1984 03 19

Dear

I suppose you are eagerly awaiting spring break--a much needed break after three long months since the last holiday.

I am busily working on my thesis--yes, I jumped from the frying pan into the fire. I just could not resist getting started on my research after the seminar with Dr. Porozny last year on thesis writing.

At this time, I am writing to you to request your professional assistance. I have compiled a questionnaire (based on my thesis topic of word processing education) which is to be sent to business educators in Canada. However, before I send it to so many business educators, I am wondering if you will be a part of my pilot committee to scrutinize the questionnaire. I know you have an excellent background in research and thus your help would be greatly appreciated.

Would you please complete the questionnaire as a business educator. Then would you also make comments as to positive and negative points about the questionnaire? You may do this in the margins on the questionnaire or on a separate sheet. Please feel free to be open and honest.

Your assistance is much appreciated. I look forward to receiving the completed questionnaire at your earliest convenience. Again, thanks so much.

Yours for business education,

Eva Brown
Graduate Student
The University of Manitoba

WINNIPEG, MB R
1984 04 09

Dear

Thank you!

I have received your completed questionnaire. Your promptness merits an award--congratulations. I really appreciate your comments which will help to improve my questionnaire and, on a larger scale, hopefully will help to improve business education.

Again, thanks so much for your help.

Yours for business education,

Eva Brown
Graduate Student
The University of Manitoba

WINNIPEG, MB R
1985 11 27

Dear

Winter is really upon us and Christmas just around the corner. I trust your school year is exciting and challenging.

As you will recall, you participated as a member of my pilot committee for my thesis. Your help is much appreciated. I am writing at this time to request permission to include your name in my thesis as having partiicpated in my pilot committee.

Yes, I am nearing completion of my thesis. It's been a long haul but the light is visible at the end of the tunnel--getting brighter every day.

Please return this letter checked at the bottom of the page as to your decision in the enclosed stamped envelope. Thanks again--and Merry Christmas.

Yours for business education,

Eva Brown

_____ You may include my name in your thesis as a member of the pilot committee

_____ You may not include my name in your thesis as a member of the pilot committee

APPENDIX N - SURVEY INSTRUMENT: QUESTIONNAIRE

Q U E S T I O N N A I R E

SECTION A

1. Do you teach information/word processing?

   YES _____ NO _____

   IF NO, GO TO QUESTION #9.

   IF YES, PLEASE ANSWER THE FOLLOWING:

2. In which subject(s) do you teach information/word processing?

   Office Procedures _____

   Typewriting Grade(s) _____

   Shorthand Grade(s) _____

   Data Processing Grade(s) _____

   Other [subject(s) and grade(s)]

   _____

   _____

3. What pre-requisite skills do you expect students to have prior to enrolling in and studying information/word processing?

   _____

   _____

   _____

   _____

4. In teaching information/word processing, do you teach:

   Theory/Concepts YES _____ NO _____

   Hands-on with equipment/hardware YES _____ NO _____

GO TO PAGE 2

5. What type of equipment and how many of each do you use?

	MAKE/MODEL	No.
Dedicated/stand alone word processor	_____	____
Microcomputer	_____	____
Peripheral equipment	_____	____
	_____	____

6. In your opinion, are the current graduating secondary level students adequately trained for job-entry in information/word processing?

YES _____ NO _____

Why or why not? _____

_____

_____

_____

_____

_____

7. In your opinion, how can the curriculum for information/word processing education at the secondary level be improved to prepare students for the office of the future?

_____

_____

_____

_____

_____

_____

GO TO SECTION B, PAGE 3

SECTION B

8. How many years have you taught information/word processing? _____

9. How did you attain your present knowledge of information/word processing? (Check those applicable)

a) _____ Formal courses taken during teacher education

b) _____ Self study

c) _____ In-service, eg: Business education conferences, one-day workshops by school division/faculty of education

d) _____ Education journals and magazines

e) _____ Colleagues, clubs/associations, eg: Association of Information Systems Professionals

f) _____ Conferences/presentations/displays

g) _____ Manufacturer's representatives/vendors

h) _____ Other (please describe) _____

_____

_____

10. In your opinion, are business education teachers trained adequately to teach information/word processing?

YES _____ NO _____

Comment _____

_____

_____

_____

_____

_____

GO TO PAGE 4

11. How can business teacher education be improved to educate teachers adequately to teach information/word processing?

THANK YOU!

APPENDIX O - LETTERS TO SUPERINTENDENTS, BUSINESS DIRECTORS

WINNIPEG, MB R

ATTENTION: SUPERINTENDENT OF SCHOOLS

Dear Sir or Madam:

I am currently working on my thesis for my master's degree at the University of Manitoba. My thesis topic deals with information/word processing education. I am interested in learning about the business education programs in each Canadian province.

I am writing to you to ask you to assist me in contacting teachers in your province who are involved in teaching information/word processing. Would you please send me the names and addresses of such teachers in your division? I realize that some divisions are quite large and an exhaustive list may not be available. In such case, would you please supply a list of ten to fifteen names.

I thank you very much for your assistance. Your help is greatly appreciated.

Yours for business education,

Eva Brown

WINNIPEG, MB

ATTENTION: SUPERINTENDENT OF SCHOOLS

Dear Sir or Madam:

HELP!

I am currently working on my thesis for my master's degree at the University of Manitoba. My thesis topic deals with information/word processing education. I am interested in learning about the business education programs in each Canadian province.

I wrote to you requesting names and addresses of teachers involved in teaching information/word processing in your province but have not heard from you yet.

Since my thesis is national I need to hear from you in order to present accurate statistics about what is happening in schools. Also, since Ontario has the largest population in Canada I need to survey many teachers in Ontario in order to be proportional.

Will you help? Thank you. I know I can count on you.

Yours for business education,

Eva Brown

WINNIPEG, MB R
1985 01 31

ATTENTION: LE SUPERINTENDENT DES ECOLES

Cher Monsieur/chére Madame:

Actuellement je travaille à ma thése pour ma maîtrise à l'université de Manitoba. Je traite le sujet information/traitement de texte. Me me suis intéressée à apprendre des programmes d'éducation d'affaires aux écoles sécondaires dans chaque province.

Je vous écris pour vous demander de m'aider à trouver des contacts avec des professeurs de votre province, qui sont dans ce programme.

Pouvez-vous m'envoyer les noms et les adresses de ces professeurs dans vos divisions scolaires? Je me rends compte que plusiers des divisions sont assez grandes et on ne peut pas se procurer une liste complète. Dans ce cas là, pouvez-vous juste m'envoyer une liste de dix où quinze noms?

Je vous remercie pour votre assistance, et vous prie, monsieur/madame, de recevoir mes salutations distenquées.

A votre disposition,

Eva Brown

WINNIPEG, MB R

Dear Business Director:

I am currently working on my thesis for my master's degree at the University of Manitoba. My thesis topic deals with information/word processing education. I am interested in learning about the business education programs in each Canadian province.

I have received your name from as a Director who is able to provide me with the names and addresses of teachers involved in teaching information/word processing. Would you please send me such names and addresses of teachers in your jurisdiction?

May I count on you for your help? I trust I will hear from you soon. Thank you very much for your cooperation. It is much appreciated!

Yours for business education,

Eva Brown

WINNIPEG, MB R

Dear Business Director:

I am currently working on my thesis for my master's degree at the University of Manitoba. My thesis topic deals with information/word processing education. I am interested in learning about the business education programs in each Canadian province.

I am writing to ask you to assist me in learning about the information/word processing curriculum in your province. Would you please supply me with the names and addresses of teachers teaching information/word processing in your region--either as an independent word processing course or as part of another course eg. Typewriting.

Any other information which you think might be useful to me would be much appreciated.

May I count on you for your help? I trust I will hear from you soon. Thank you very much for your cooperation. It is much appreciated!

Yours for business education,

Eva Brown

APPENDIX P - LETTERS TO BUSINESS EDUCATORS

Box
WINNIPEG, MB R

Dear Business Educator:

I received your name as a business educator teaching or otherwise involved in information/word processing from your superintendent. I am writing to you to ask you to assist me in research for my thesis on information/word processing. My thesis deals with the current status of information/word processing education at the secondary level in Canada. Information/word processing is an area which is developing in education--but how much has been done and how much needs to be done in this course to prepare secondary level students adequately for the real business world? That is the issue my thesis will attempt to answer.

Would you please complete the enclosed questionnaire--and one more thing--would you please return it to me as soon as possible? I trust that you will take a few minutes of your precious time to complete the questionnaire. Please don't toss it aside. Your professional assistance is very important and valuable.

May I count on your cooperation? Thank you for your help! I do greatly appreciate it.

Yours for business education,

Eva Brown
Graduate Student
The University of Manitoba

Enclosure

Box
WINNIPEG, MB R

Dear Business Educator:

Summer is approaching very rapidly and yet there is so much work to be done before holidays can begin. I am sure that you are as busy as ever--life always seems to get busier doesn't it--but then again would we have it any other way?!

I received your name as a business educator teaching or otherwise involved in information/word processing from your business education consultant. I am writing to you to ask you to assist me in research for my thesis on information/word processing. My thesis deals with the current status of information/word processing education at the secondary level in Canada. Information/word processing is an area which is developing in education--but how much has been done and how much needs to be done in this course to prepare secondary level students adequately for the real business world? That is the issue my thesis will attempt to answer.

Would you please complete the enclosed questionnaire--and one more thing--would you please return it to me as soon as possible? I trust that you will take a few minutes of your precious time to complete the questionnaire. Please, don't toss it aside. Your professional assistance is very important and valuable.

May I count on your cooperation? Thank you for <u>your</u> help! I do greatly appreciate it.

Yours for business education,

Eva Brown
Graduate Student
The University of Manitoba

Enclosures

Box
WINNIPEG, MB R
1984 06 08

Dear Business Educator:

About six weeks ago I sent you a letter asking you to assist me in research for my thesis on information/ word processing. I have not heard from you yet and am wondering if perhaps the letter got lost in the mail or perhaps it got misplaced among your stacks of marking!

I am enclosing a copy of the questionnaire. May I hear from you please--in the next few days? Your reply is of utmost importance.

I trust you will find a few minutes to complete the questionnaire and return it promptly. I need your help!

Thank you ever so much--I know I can count on you!

Yours for business education,

Eva Brown

Enclosure

WINNIPEG, MB R

Dear Business Educator:

Some time ago I sent you a letter asking you to assist me in research for my thesis on information/word processing. I have not heard from you yet and am wondering if perhaps the letter got lost in the mail or perhaps it got misplaced among your stacks of marking!

I am enclosing a copy of the questionnaire. May I hear from you please--in the next few days? Your reply is of utmost importance.

I trust you will find a few minutes to complete the questionnaire and return it promptly. I need your help desperately!

Thank you ever so much--I know I can count on you!

Yours for business education,

Eva Brown

Enclosure

APPENDIX Q - THANK YOU LETTERS

WINNIPEG, MB R
1984 02 23

Dear

Thank you!

I have received the information from you concerning the business education program in your province. Your cooperation is much appreciated.

Thanks again.

Yours for business education,

Eva Brown
Graduate Student
The University of Manitoba

WINNIPEG, MB R
1984 02 23

Dear

Thank you!

I have received the information from you concerning the business teacher education program at University. Your cooperation is much appreciated.

Thanks again.

Yours for business education,

Eva Brown
Graduate Student
The University of Manitoba

APPENDIX R - TYPES OF MICROCOMPUTERS BY PROVINCE

TABLE 18

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING-- NEWFOUNDLAND

MAKE/MODEL	NO.
Xerox Professional Computer	15
IBM 5151	4
Keron 820	1
TRS-80 Model 3	1
TOTAL	21

TABLE 19

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING-- PRINCE EDWARD ISLAND

MAKE/MODEL	NO.
Commodore	17
Commodore 8032	16
Commodore Superpet	13
Commodore Pet	7
Commodore 4016	4
Commodore 4032	4
Commodore 64	2
TOTAL	63

TABLE 20

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING--NOVA SCOTIA

MAKE/MODEL	NO.
Apple // e	33
Macintosh	18
Apple // plus	10
Apple	2
Total Apple	63
Commodore 64	35
Commodore 8032	10
Commodore Pet	10
Commodore	3
Commodore Superpet	2
Total Commodore	60
Corona	2
IBM Personal Computer	1
TRS-80 Model 4	1
Microcomputer--unspecified	1
TOTAL	128

TABLE 21

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING-- NEW BRUNSWICK

MAKE/MODEL	NO.
Commodore Superpet	78
Superpet 9000	74
Commodore 8032	59
Commodore 64	31
Commodore Pet	21
Commodore 8030	6
Microcomputer--unspecified	23
TOTAL	292

TABLE 22

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING--QUEBEC

MAKE/MODEL	NO.	
Commodore		
Commodore 64	15	
Commodore 8032	14	
Commodore Pet	11	
	9	
Total Commodore		49
Cemcorp ICON		22
TRS-80 Model 3		16
Apple // e	9	
Apple // plus	2	
Total Apple		11
Microcomputer--unspecified		3
TOTAL		101

TABLE 23

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING-- ONTARIO

MAKE/MODEL	NO.
Commodore Pet	78
Commodore 8032	41
Commodore 64	11
Commodore Superpet	1
Total Commodore	131
IBM Personal Computer	21
IBM Personal Computer, Junior	12
Total IBM	33
TRS-80 Model 3	22
TRS-80	6
TRS-80 Model 4	2
Total TRS-80	30
Apple // e	15
TOTAL	209

TABLE 24

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING--MANITOBA

MAKE/MODEL	NO.
Commodore	60
Commodore 8032	35
Commodore Pet	32
Commodore Superpet	1
Total Commodore	128
TRS-80	61
TRS-80 Model 3	45
TRS-80 Model 4	16
Total TRS-80	122
Apple // e	63
Apple	22
Apple // plus	12
Total Apple	97
Franklin	7
IBM Personal Computer	2
Microcomputer--unspecified	2
TOTAL	358

TABLE 25

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING--SASKATCHEWAN

MAKE/MODEL	NO.
Apple // e	30
Apple	10
TOTAL	40

TABLE 26

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING--ALBERTA

MAKE/MODEL	NO.
Commodore	93
Commodore 8032	65
Commodore Superpet	25
Commodore Pet	19
Total Commodore	202
Apple // e	21
Apple // plus	18
Total Apple	39
TOTAL	241

TABLE 27

TYPES OF MICROCOMPUTERS USED IN THE TEACHING OF INFORMATION/WORD PROCESSING-- BRITISH COLUMBIA

MAKE/MODEL	NO.
Apple	10
Apple // e	4
Total Apple	14
IBM Personal Computer	10
Commodore Superpet	7
Northstar	5
TOTAL	36

APPENDIX S - COMMENTS FROM BUSINESS EDUCATORS TO QUESTION 6

COMMENTS FROM BUSINESS EDUCATORS TO QUESTION 6: Are Current Graduating Secondary Level Students Adequately Trained For Job-Entry In Information/Word Processing?

More hands on experience to build confidence with proper equipment

Encourage students to do extra assignments e.g. term papers on word processors

Instructors lack training in this area

Equipment is limited

Word processing is only part of a broader business course so not enough practice is available to become proficient

Only an introduction is offered in training which is not enough

Situations in an office will not be easily adapted to i.e. from microcomputers to stand-alone equipment

Curriculum is not prepared to teach formal concepts

Curriculum needs to include a separate word processing course

Lack of learning materials--manuals are not written by educators therefore are poorly organized and the language too difficult for students

Some employers to not recognize microcomputer word processing courses as adequate training

Students are not getting the word processing jobs

Fear of computers

Varies according to the job

Depends on students initiative

Knowledge of word processing basics is adequate to transfer to an office situation

A full year course is sufficient for job entry

Language and typing skills are lacking

Training given is adequate for graduating--training for a specific job should be done on the job

A full two-year course in computer programming qualifies students as word processors

Three 40-minute classes per week for one year is adequate

Experience on only one system is not sufficient

Feedback from employers is positive

Software used is not an industry standard

English skills are lacking for proofreading, keyboarding and editing

Teachers need to compare notes to improve upon their courses

Course is designed based on actual office situations--students do work projects given by schools and staff and prepare and set up systems

Comments received from students on-the-job as to the ease of learning new equipment was favourable

If students motivation ranks high then students learn more and are better qualified

APPENDIX T - COMMENTS FROM BUSINESS EDUCATORS TO QUESTION 7

COMMENTS FROM BUSINESS EDUCATORS TO QUESTION 7: How Can The Curriculum For Information/Word Processing Education At The Secondary Level Be Improved to Prepare Students For The Office Of The Future?

Word processing needs to be a separate course

Greater emphasis on English skills--grammar, spelling, proofreading--is necessary

Software used needs to be an industry standard

Curriculum is satisfactory

Increase in the number of machines available to students--stand-alone equipment

Curriculum must include theory, hands-on, and communication (editing)

Word experience for students

Funding for teachers to retrain in word processing

Liaison from business/industry in the schools

Field trips to business automated offices

Exposure to various makes of hardware

Support materials such as textbooks, backup exercises and audio visual aids need to be available

Standard curriculum should be devised for all high schools by business personnel and business teachers

More useful software needs to be available

Pre-requisite to word processing needs to be a two-year typing course and a grammar/spelling test

Word processing should be available to all students

Real projects need to be done in word processing e.g. office/business assignments

Teachers need to be trained adequately

In-services for teachers need to be increased

Work experience included in the curriculum for students--centralized data base systems, telecommunications, Teledon-oriented materials, integrated software systems

Funding for equipment increased

Word processing needs to be a two-year program

Input from employers as to expectations of job-entry students

Realistic teaching making application to business and industry is essential

Leadership by the Department of Education with a word processing task force

Exposure to more than one type of equipment including dedicated word processors

A list of useful resources

More emphasis on the development of language skills

Increased hands-on training

Information as to what industry expects of students

Revision of business education courses to update content and make word processing a larger part of the program

Office procedures should become a two credit course including a word processing component

APPENDIX U - COMMENTS FROM BUSINESS EDUCATORS TO QUESTION 10

COMMENTS FROM BUSINESS EDUCATORS TO QUESTION 10: Are Business Education Teachers Trained Adequately To Teach Information/Word Processing?

Need for courses for teachers teaching word processing to become (better) qualified--especially in rural areas

More in-services dealing with word processing

Teachers have not taken formal training to be qualified to teach word processing--especially those having taught a number of years before word processing was introduced into the teacher education program

Need for methods course in word processing

Teachers have not had time to take courses to become qualified

Much training by teachers is on-the-job as they teach

Recent graduates are taught the basics of word processing

Curriculum needs to be more specific--some teachers don't bother to become adequately trained as a result

Course transition needs to occur--update course content

Equipment was placed in classrooms and business education teachers were expected to take whatever measures were needed to use it--on their own time

More teachers are now completing course work at university

Resource materials are readily available for teachers

Only the basics of word processing can be handled in high school, therefore, training available is adequate

Teachers need to be taught word processing on more than one type of machine--e.g. Apple, Commodore, TRS-80, as well as stand-alone equipment

Universities lack sufficient equipment

Word processing is relatively new and changing so rapidly that teachers are not trained--adequately--in an effort to keep up with teaching

More hands-on experience is needed in addition to theory courses

School divisions (administration) have not recognized word processing as an important part of the curriculum so as to provide time for teachers to become better qualified to teach word processing

School divisions need to allow their teachers to take time from teaching to retrain allowing some funds for training

Teachers are afraid to update themselves in this area

Current graduates are better trained than former graduates

Teachers must work through a package and become familiar with what it (word processing) does

Teacher education standards need to be improved

Continual contact with business community is essential

Teachers have gained word processing work experience during summer months

Teachers have sough word processing training on their own and have become adequately trained

Experts need to teach word processing course on dedicated word processors--perhaps those from the "real offices"

Teachers need to keep up-to-date by reading current information

Teachers are not aware of happenings in current automated offices

APPENDIX V - COMMENTS FROM BUSINESS EDUCATORS TO QUESTION 11

COMMENTS FROM BUSINESS EDUCATORS TO QUESTION 11: How Can Business Teacher Education Be Improved To Educate Teachers Adequately To Teach Information/Word Processing?

Workshops should be periodical--annually

Leave of absence be provided to gain work experience or attend classes in word processing

Universities should offer word processing as credit courses in degree programs providing hands-on training

Incentives for teachers to improve-upgrade their training such as tuition subsidies need to be offered

Teachers should be given solid training in the principles of word processing including thorough instruction about equipment

Up-to-date equipment is needed for classrooms to provide a more realistic approach to teaching

Word processing provided at various locations to allow rural area teachers to be included

Courses should be offered to teachers during summer school or evenings

Updated information needs to be made available to teachers on word processing in business for teachers to keep informed

Extension theory courses need to be available

Required course with hands-on, both theory and methods

Adequately trained professors

In-services and workshops need to be conducted to train teachers--so time and funding is not such a big factor as opposed to taking time off teaching for a university course

Field trips to automated offices

Liaison between school and business on evaluation of secondary instruction

Availability of materials

Current information available to teachers--reports by teachers

Thoroughly trained resource persons helping with equipment and software

Word processing needs to be a compulsory major part of business teacher education program

A survey course on various functions and uses of different word processors--hardware and software--including stand-alone equipment

Teachers need to gain recent work experience in automated offices

Newsletters with current word processing information

Compulsory upgrading to maintain teaching certificate

APPENDIX W - ENROLMENT OF SCHOOL DIVISIONS PARTICIPATING IN THIS STUDY BY PROVINCE

TABLE 28

ENROLMENT OF SCHOOL DIVISIONS
PARTICIPATING IN THIS STUDY
BY PROVINCE

PROVINCE	ENROLMENT
NF	-
PE	36,126
NS	136,348
NB	65,954
PQ	268,738
ON	801,023
MB	213,426
SK	59,197
AB	199,616
BC	166,719
TOTAL	1,931,639

*SOURCE: CEA HANDBOOK

TABLE 29

SCHOOL DIVISION ENROLMENT
NEWFOUNDLAND

No correspondence was sent to Newfoundland superintendents because sufficient names of business educators were received from other sources i.e. business consultant

TABLE 30

SCHOOL DIVISION ENROLMENT
PRINCE EDWARD ISLAND

DIVISION	STUDENT ENROLMENT
Abram-Village	*
Charlottetown	10,500
Elmsdale	*
Montague	5,008
Summerside	20,618
TOTAL	36,126

*Enrolment figures not available.

TABLE 31

SCHOOL DIVISION ENROLMENT
NOVA SCOTIA

DIVISION	STUDENT ENROLMENT
Arichat	2,985
Barrington	3,475
Bridgewater	8,642
Dartmouth	12,088
Digby	2,510
Guysborough	2,946
Halifax	27,620
Kentville	11,109
Liverpool	2,707
Meteghan	3,550
North Sydney	7,952
Port Hood	5,169
Springhill	6,800
Sydney	21,928
Truro	13,257
Windsor	3,610
TOTAL	136,348

TABLE 32

SCHOOL DIVISION ENROLMENT
NEW BRUNSWICK

DIVISION	STUDENT ENROLMENT
Chatham	3,702
Dalhousie	*
Edmundston	*
Fredericton	11,113
Hampton	9,844
Moncton	1,096
Saint John	17,486
Tracadie	5,713
Woodstock	5,000
TOTAL	65,954

*Enrolment figures not available.

TABLE 33

SCHOOL DIVISION ENROLMENT
QUEBEC

DIVISION	STUDENT ENROLMENT
Amqui	4,650
Baie-Comeau	7,232
Beauport	5,794
Carleton	3,070
Chicoutimi	8,303
Hull	13,467
Laval	18,348
Montreal (Catholic)	106,449
Montreal (Jerome)	21,800
Montreal (Protestant)	32,048
Montreal (Sainte-Croix)	8,700
Otterburn	1,120
Quebec (Catholic)	14,904
Quebec (Montcalm)	2,036
Sherbrooke	12,441
Ste-Anne	1,811
Ste-Therese	6,565
TOTAL	268,738

TABLE 34

SCHOOL DIVISION ENROLMENT
ONTARIO

DIVISION	STUDENT ENROLMENT
Barrie	40,409
Bloomfield	3,443
Brantford	16,952
Chatham	16,945
Etobicoke	34,831
Hamilton	41,207
Kenora	2,890
Kitchener	50,291
London	41,040
Mississauga	84,650
Orangeville	7,008
Oshawa	47,667
Ottawa	35,942
North Bay	10,437
North York	69,937
Parry Sound	3,076
Peterborough	16,613
Sarnia	18,792
Sault Ste. Marie	13,075
Scarborough	78,445
Simcoe	9,158
Stratford	11,954
Sudbury	20,466
Thunder Bay	20,351
Timmins	6,360
Toronto	76,902
Windsor	23,182
TOTAL	801,023

TABLE 35

SCHOOL DIVISION ENROLMENT
MANITOBA

DIVISION	STUDENT ENROLMENT
Winnipeg No. 1	34,135
St. James Assiniboia No. 2	14,644
Assiniboine South No. 3	5,880
St. Boniface No. 4	7,579
Fort Garry No. 5	6,348
St. Vital No. 6	7,381
Norwood No. 8	1,739
River East No. 9	13,264
Seven Oaks No. 10	7,636
Lord Selkirk No. 11	5,224
Transcona-Springfield No. 12	8,218
Agassiz No. 13	3,155
Seine River No. 14	4,106
Hanover No. 15	5,002
Boundary No. 16	1,087
Red River No. 17	1,331
Rhineland No. 18	1,444
Morris-MacDonald No. 19	1,570
White Horse Plain No. 20	1,283
Interlake No. 21	3,361
Evergreen No. 22	2,179
Lakeshore No. 23	2,049
Portage la Prairie No. 24	3,716
Midland No. 25	1,909
Garden Valley No. 26	2,194
Pembina Valley No. 27	947
Mountain No. 28	1,436
Tiger Hills No. 29	1,606
Pine Creek No. 30	1,732
Beautiful Plains No. 31	2,053
Turtle River No. 32	1,917
Dauphin Ochre No. 33	2,901
Duck Mountain No. 34	1,287
Swan Valley No. 35	2,468
Intermountain No. 36	2,045
Pelly Trail No. 37	1,658
Birdtail River No. 38	1,703
Rolling River No. 39	2,474
Brandon No. 40	7,751

TABLE 35 continued

Fort la Bosse No. 41	2,243
Souris Valley No. 42	1,220
Antler River No. 43	1,352
Turtle Mountain No. 44	1,791
Kelsey No. 45	2,852
Flin Flon No. 46	1,813
Western No. 47	1,276
Frontier No. 48	5,221
Churchill No. 2264	325
Snow Lake No. 2309	483
Lynn Lake No. 2312	541
Mystery Lake No. 2355	3,898
Sprague No. 2439	233
Leaf Rapids No. 2460	673
Pine Falls No. 2155	177
Camp Shilo No. 2316	591
Whiteshell No. 2408	603
TOTAL	213,426

*No correspondence was sent to Manitoba superintendents because names of business educators were available through the office of the business education consultant, Education Manitoba.

TABLE 36

SCHOOL DIVISION ENROLMENT
SASKATCHEWAN

DIVISION	STUDENT ENROLMENT
Hudson Bay	1,840
Maple Creek	1,240
Meadow Lake	2,641
Moosomin	1,618
Prince Albert No. 3	3,800
Regina No. 4	23,776
Saskatoon No. 13	21,662
Saskatoon West No. 42	2,620
TOTAL	59,197

TABLE 37

SCHOOL DIVISION ENROLMENT
ALBERTA

DIVISION	STUDENT ENROLMENT
Banff	420
Brooks	2,324
Calgary	84,031
Edmonton	69,042
Fort McMurray	4,950
High River	4,650
Medicine Hat No. 4	1,156
Medicine Hat No. 76	*
Morinville	4,500
Peace River	2,485
St. Albert No. 3	3,225
Sherwood Park	12,704
Stony Plain	10,129
TOTAL	199,616

*Enrolment figures not available.

TABLE 38

SCHOOL DIVISION ENROLMENT
BRITISH COLUMBIA

DIVISION	STUDENT ENROLMENT
Burnaby (Vancouver)	17,304
Cranbrook	4,700
Fort Nelson	1,115
Penticton	4,619
Port Hardy (Island)	*
Prince George	20,504
Prince Rupert	4,200
Revelstoke	2,124
Squamish	2,914
Surrey (Vancouver)	32,000
Vancouver	50,069
Victoria (Island)	21,941
West Vancouver	5,239
TOTAL	166,719

*Enrolment figures not available.

APPENDIX X - SUGGESTED JOURNALS

Administrative Management
Business Education FORUM
Business Week
Communications News
Datamation
Format (Business Forms Management Association)
Impact: Information Technology (Administrative Management Society)
Information Management
Information Systems News
Infosystems
Journal of Data Management
Journal of Micrographics
Management Technology
Modern Office Technology
Office Administration and Automation
Records Management Quarterly
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