

A DESIGN AND DEVELOPMENT OF AN INDIVIDUALIZED COMPETENCY-BASED
ACCOUNTING MODULE FOR A SELECTED TOPIC IN AN
INTRODUCTORY HIGH SCHOOL ACCOUNTING COURSE

By

Kenneth William Blinkhorn

Submitted to the Faculty of Graduate Studies in
Partial fulfilment of the requirements
for the degree of
Master of Education

University of Manitoba
Faculty of Education
Department of Mathematics and Natural Sciences

1981

A DESIGN AND DEVELOPMENT OF AN INDIVIDUALIZED COMPETENCY-BASED
ACCOUNTING MODULE FOR A SELECTED TOPIC IN AN
INTRODUCTORY HIGH SCHOOL ACCOUNTING COURSE

BY

KENNETH WILLIAM BLINKHORN

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF EDUCATION

©^v 1981

Permission has been granted to the LIBRARY OF THE UNIVERSITY OF MANITOBA to lend or sell copies of this thesis, to the NATIONAL LIBRARY OF CANADA to microfilm this thesis and to lend or sell copies of the film, and UNIVERSITY MICROFILMS to publish an abstract of this thesis.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS	vi
LIST OF TABLES	vii
ACKNOWLEDGEMENTS	viii
ABSTRACT	ix
Chapter	
I. INTRODUCTION	1
Background to the Study	1
Statement of the Problem	4
The Purpose of the Study	5
The Need for the Study	7
Limitations	10
Delimitations	11
Definition of Terms	12
Organization of the Study	16
II. REVIEW OF THE RELATED LITERATURE	17
I. Definitions of Competency-Based Education and Individualized Instruction	19
IA. Definitions of Competency-Based Education	19
IB. Definitions of Individualized Instruction	24
Summary of Definitions of Competency-Based Education and Individualized Instruction	27
II. Historical Background of Individualized Instruction	29
III. Individual Learning Differences	32
IV. In Search for Mastery: A Conceptual Foundation for Competency-Based Education	35
IVA. Development of the Model	35
IVB. Components of the Mastery Model	38
V. The Systems Approach to Competency-Based Education and Individualized Instruction	41
VI. Individualized Instruction in Accounting	45
VII. Modular Instruction	52
VIIA. Components of a Module	54
VIIB. Rationale for Sequencing Components	55
VIIC. Background to the Taxonomy of Educational Objectives	56

Summary of the Review of Related Literature	66
III. METHODOLOGY OF THE STUDY AND CONCEPTUAL FRAMEWORK OF THE MODULE	70
I. Methodology	70
Information Gathering	71
Panel of Experts	72
II. Conceptual Framework of the Module	73
Content, Scope, and Sequence	73
Collecting Curriculum Material for the Module	74
Arrangement of Student Learning Activities	77
Student Evaluation	82
IV. FINDINGS	87
Introduction	87
Questions Concerning the Pre-Test and the Post-Test Evaluation	87
Questions Concerning the Module Evaluation	88
Results	90
Pre-Test Evaluation	90
Post-Test Evaluation	93
Module Evaluation	95
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	102
Summary	102
Purpose of the Study	102
Research Procedures	103
Summary of Findings	104
Conclusions	109
Recommendations for Future Research	111
FOOTNOTES	113
APPENDICES	123
A. Letters for copyright clearance	124
B. Letter to United States Office of Education and their reply	130
C. Letters written to, and replies from educational institutions concerning the collection of curriculum material for the study	134
D. An example of the letter written to twelve selected experts asking if they would take part in the study	143
E. Replies from ten experts confirming that they will serve as the panel of experts	145

F. A sample letter sent to each expert outlining the evaluation procedures	156
G. Follow-Up Letters	159
H. Evaluation Sheets	162
Evaluation Sheets for the Pre-Test and Post-Test	163
Evaluation Sheets for the Module	171
I. The Revised Module	184
Accounting Equation Module	185
Accounting Equation Module Test -- Form 1	300
Accounting Equation Module Test -- Form 2	312
Accounting Equation Module -- Instructors Manual	320
BIBLIOGRAPHY	362
VITAE	373

LIST OF ILLUSTRATIONS

A. A Curriculum Hierarchy for the Addition of Integers	65
B. Charting a Learning Hierarchy for the Accounting Equation Module	78
C. Flow Chart of the Accounting Module	83

LIST OF TABLES

I. Major Categories in the Cognitive Domain of the Taxonomy of Educational Objectives	58
II. Examples of General Instructional Objectives and Behavioral Terms for the Cognitive Domain of the Taxonomy	59
III. Major Categories in the Affective Domain of the Taxonomy of Educational Objectives	60
IV. Examples of General Instructional Objectives and Behavioral Terms for the Affective Domain of the Taxonomy	61
V. Examples of General Instructional Objectives and Behavioral Terms for the Psychomotor Domain of the Taxonomy	62
VI. Equation Approach to the Teaching of the Accounting Cycle	75
VII. The Accounting Cycle	76

ACKNOWLEDGEMENTS

I wish to express my appreciation to Dr. G. H. J. Porozny, my advisor and committee chairman, who devoted his time and effort throughout the entire study.

I would also like to thank my other committee members Dr. A. M. McPherson and Dr. J. A. Riffel for offering advice in their areas of expertise.

I would like to acknowledge the contribution of curriculum materials for this study from three individuals: Professor H. J. Kaluza at the University of Western Ontario; Dr. Marianne D'Onofrio at the University of Wisconsin; and Dr. David Weaver, the Research Director of McGraw-Hill Book Company in New York.

I would like to express my gratitude to the panel of experts for taking part in this study. Without their evaluations, this study would have been incomplete.

Finally, I would like to thank Patrick Wright, the reference librarian at the University of Manitoba Education Library, who unselfishly offered his service to an eager and sometimes over zealous graduate student.

ABSTRACT

The purpose of the study was to develop an individualized competency-based learning module on the topic the accounting equation. The module was designed for an introductory high school accounting course and used the equation approach as its conceptual framework. Although the equation uses fourteen steps to teach the accounting cycle, this study was concerned with only the first five steps.

One of the major objectives of this study was to develop a reliable module which would be used at some future date in a classroom situation. To accomplish this twelve experts in education were asked, in writing, to evaluate the module. Opinions and recommendations from the panel of experts served as a basis for the revised module.

Ten out of the twelve experts agreed to take part in the study. Nine experts eventually complied as requested by evaluating the pre-test and the solutions, the post-test and the solutions, and the accounting module and the accompanying solution manual. Concerning the pre-test and post-test evaluation the findings of the study showed that:

Seven out of nine experts agreed that the questions measured appropriate learning outcomes for both the pre-test and the post-test.

Eight out of nine experts felt that the test items measured an adequate sample of performance for each type of interpretation made in both the pre-test and post-test.

Eight out of nine experts confirmed that the test items presented clear and definite tasks to be performed in both the pre-test and the post-test.

Eight out of nine experts believed that the test items were of appropriate difficulty for the learning outcomes measured for both the pre-test and the post-test.

While six out of nine experts agreed that the test items were free from technical defects in the pre-test, seven out of nine experts reported that the test items were free from technical defects in the post-test.

All of the experts agreed that the test items were numbered in consecutive order for both the pre-test and the post-test.

All of the experts reported that specific and clear directions were provided for each section of the test, and for the test as a whole, in both the pre-test and the post-test.

The findings of the study for the module evaluation indicated
that:

Seven out of nine experts agreed that each performance objective was stated in measurable terms.

Eight out of nine experts felt that each performance objective was limited enough to be attained.

Eight out of nine experts felt that each performance objective was relevant to a more general objective.

Seven out of nine experts reported that the directions were stated clearly.

Seven out of nine experts reported that the test items provided direct measures of all the tasks described in the performance objectives.

Eight out of nine experts stated that a reasonable standard for mastery had been set.

Eight out of nine experts reported that the directions for procedures were stated clearly.

Seven out of nine experts confirmed that the materials and activities contributed to the achievement of the performance objectives.

Six out of nine experts confirmed that there was a variety of the types and levels of learning materials in the module.

In addition to these findings the nine panel experts evaluated the module according to a ten point scale. The ten point scale revealed the following scores:

The objectives ranged from a low of 3.5 to a high of 9.0 with a mean of 7.56.

The organization of materials ranged from a low of 2.5 to a high of 9.0 with a mean of 7.39.

Methodology ranged from a low of 2.5 to a high of 9.0 with a mean of 6.67.

The score for evaluation ranged from a low of 3.5 to a high of 9.0 with a mean of 7.22.

Overall assessment of the module ranged from a low of 2.5 to a high of 9.0 with a mean of 6.375.

The panel of experts commented extensively on each of the findings. From these findings a revised pre-test and solutions, post-test and solutions, and a learning module and solution manual were devised to reflect the common opinion of the panel of experts.

CHAPTER I

INTRODUCTION

The most wasteful and destructive aspect of our educational system is the set of expectations about student learning each teacher brings to the beginning of a new course or term. The instructor expects a third of his pupils to learn well what is taught, a third to learn less well, and a third to fail or just "get by." These expectations are transmitted to pupils through the methods and materials of instruction. Students quickly learn to act in accordance with them, and the final sorting through the grading process approximates the teacher's original expectations. A pernicious self-fulfilling prophecy is created.¹

Background to the Study

This study was concerned with the need for flexible curriculum materials which allowed students to progress at their own learning rate. To satisfy each student's learning rate, curriculum materials were designed in such a way that the student knew how to progress through the curriculum. Therefore, curriculum materials contained specific objectives which told the student what to do, and evaluation procedures that measured student performance according to a prescribed criteria. Curriculum materials developed according to this procedure endorsed the idea that students were individuals and had many needs.

Much of this type of argument was supported in the literature under the categories of competency-based education and individualized instruction.

Although competency-based education and individualized instruction existed within the educational system their counterparts

-- norm referenced education and group instruction -- were more popular. In a competency-based educational system student performance was measured according to a pre-set standard, known as the mastery level. Students must achieve the mastery level stated in the objectives of the learning task to progress through the curriculum. This was unlike norm-referenced education where the student was compared to others in his or her class.² Thus, one of the main differences between competency-based education and norm-referenced education was in determining acceptable student performance. In competency-based education acceptable student performance was achieved when a student met the mastery level stated in the performance objective of the learning task. Acceptable student performance in norm-referenced education on the other hand, was determined by comparing one student's performance to a group of students in his or her class.

Individualized instruction, according to Glen Heathers, "consists of any steps taken in planning and conducting programs of studies and lessons that suit them to the individual student's learning need, learning readiness, and learner characteristics or 'learning style'."³ Individualized instruction was not necessarily students working in isolation, although it could be, but individualized instruction could and did in fact exist within a traditional classroom setting. The main difference between individualized instruction and group instruction was that individualized instruction was concerned with instruction for each individual student while group instruction was directed towards the whole class.

The problem area in this study was high school accounting.

Just as the study was a progressive development supporting individualized instruction and competency-based education, the problem area was also one of development, consideration, and experience, coming to some conclusions about the most efficient method to teach accounting concepts. Also, the influence of Professor Kaluza which developed from a student-teacher relationship to a more collegial relationship was of great significance in selecting the accounting equation as the conceptual framework for organizing the content in the module.

Statement of the Problem

The problem of this study was the development of a competency-based accounting module for a selected topic in an introductory high school accounting course according to a prescribed conceptual framework.

The problem encompassed the following elements:

1. The development of a conceptual framework of the module was described.
2. The module was developed within the conceptual framework.
3. A review of the module was conducted by a selected panel of nine experts.
4. A revised module was developed according to selected recommendations by the panel of experts.

The Purpose of the Study

The purpose of the study was to develop a module for a beginning high school accounting course. The conceptual framework of the module was based on many factors such as the researchers' interests in competency-based education and individualized instruction, adapting curriculum materials into meaningful experiences, the concern for standards and competence, and actual teaching experience.

Students have difficulty understanding accounting because the language of business is foreign. In fact, accounting has been defined as "the language of business."⁴ To overcome the vocabulary problem associated with accounting there were two approaches that could be used. One was that accounting concepts could be explained through the use of simple terminology and definitions could be almost ignored. Another approach called for accounting concepts to be explained in simple terms initially and later defined. Students would thus develop a detailed accounting vocabulary over a period of time. The latter was the approach used in the module.

The accounting module produced for this study adapted materials from two main sources. Permission was obtained from both of the authors and their publishers.⁶ The module was judged by a panel of nine experts. The recommendations of the panel of experts were used to revise the module.

In summary, the purpose of this study was to develop a module for a beginning high school accounting course. The accounting module adapted existing curriculum materials from two

sources within a conceptual framework based on competency-based and individualized instruction learning principles.

The Need for the Study

A majority of business educators supported the notion of competency-based education and individualized instruction. In 1976, for instance, the Policies Commission for Business and Economic Education (PCBEE) published a document entitled "This We Believe About Competency-Based Education." In this document, the PCBEE described many aspects about competency-based education, such as the role for business and industry to produce reliable competencies for business education programs, the need for uniformity within competency-based teacher education programs, and the like. Although these were useful contributions to the research on competency-based business education the most supportive evidence for this study concerned program development. According to the PCBEE the systems approach to competency-based education program development was described as the basic need. More exactly, the PCBEE stated that:

Program development should employ the systems approach, the general scheme of which includes:

- a) using identified tasks as the basis for competencies on which to build goals;
- b) constructing appropriate process and product criterion-referenced measures to determine the attainment of goals;
- c) pretesting to identify the learner's initial performance to a given goal and to describe successive actions;
- d) offering a variety of instructional resources to enhance student learning;
- e) post-testing to determine student achievement;
- f) using feedback emerging from the evaluation to reroute students and to evaluate the effective use of the system.⁷

The endorsement of the PCBEE towards competency-based education was an extension of its earlier positive attitude towards

individualized instruction which they described as "psychologically sound and educationally valid."⁸ The Policies Commission for Business and Economic Education further stated that the "individualization of instruction has particular merit for all subject areas in business education."⁹

Business educators have recognized the need for research in individualized and competency-based education. In 1976 for example, the Business Education Forum featured a review of research on individualized instruction. The review consisted of two articles. In the first article Kathryn White described the research in individualized instruction in the business skills subject areas such as typewriting and shorthand.¹⁰ In the second article, Shirley Schooley reviewed the research of individualized instruction in the non-skilled subject areas. These subject areas included bookkeeping, accounting, business mathematics, economics, business communications, and basic business. Because this study involved high school accounting, Schooley's conclusion that "there is a need for more research in the area of individualized instruction at the secondary level" in the non-skilled subject areas was extremely significant in supporting this study.¹¹

Competency-based accounting materials can either be written or adapted. An example of written curriculum materials was produced by the Vocational-Technical Consortium of the States. In this project committee members from 18 states from various educational agencies produced A Catalog of Performance Objectives, Criterion-Referenced Measures, and Performance Guides.¹² An example of adapted

curriculum materials for an individualized competency-based accounting system was developed by John Edward Graham.¹³ In his dissertation, Graham adapted a textbook, plus slides, tapes, and other curriculum materials for a first year college accounting principles class. Graham used a learning laboratory system to demonstrate the effectiveness of his individualized competency-based system for teaching accounting principles.

Workbooks, student self-paced study guides, commercially prepared tests, and a teacher's manual accompany most accounting textbooks. The existence of such aids prompted the question of whether writing original curriculum material was worthwhile considering its abundance. Chacon and Jalowsky tackled this question when they described the role of the teacher in developing individualized curriculum materials for business education at the secondary school level.

Teacher's aren't experienced writers and should not necessarily attempt to write new instructional materials. Instead, text material already prepared can be adapted for use in individualized programs by reviewing the available existing materials, preparing performance objectives for it, writing individualized instructional directions, and preparing pre- and post test.¹⁴

The research on competency-based education and individualized instruction revealed that no study has yet been developed for adapting existing curriculum materials for a beginning high school accounting course. This study has been developed to fill that gap in the research to date.

Limitations

The study was limited by the following conditions:

1. The panel of experts received a copy of the module, evaluation sheets and a covering letter stating the experts function in the study. The instructions to the panel of experts may not have been completely clear. Therefore, some of the recommendations were not applicable to this study.
2. The revised module was limited to the expertise of nine educators.

Delimitations

The following delimitations were imposed on this study:

1. Permission obtained from Professor Kaluza^{*} and McGraw-Hill Publishing Company allowed the researcher to rely on his text and support materials in writing the module.
2. Curriculum materials were adapted from Dr. David Weaver's Individualized Learning Guides. Permission for using these materials was obtained from Dr. Weaver⁺ and his publisher.
3. The module used the equation approach for the developmental sequence.
4. The scope of the topic limited the development of the module to the first five stages of teaching the accounting cycle using the equation approach.
5. A panel of twelve experts was chosen by the researcher and his advisor to evaluate the module according to a specific criteria. Suggestions and recommendations from the nine responding experts formed a basis for the revised module.

* Professor Henry Kaluza teaches at the Faculty of Education, University of Western Ontario, London, Ontario.

+ Dr. David Weaver is the Research Director at McGraw-Hill Book Company in New York.

Definition of Terms

A definition of terms is provided to clarify any terms used in the study.

Accounting - the art of recording, classifying, and summarizing, in a significant manner and in terms of money, transactions and events that are, in part at least, of financial character and interpret the results.¹⁵

Behavioral Objective - the aim or objective of education stated as actual performance criteria or as observable description of measurable behavior.¹⁶

Bookkeeping Cycle - the steps that are fundamental to all bookkeeping systems, from the financial transactions through the journal and ledger to the financial statements.¹⁷

Bookkeeping Equation - the relationship between accounts and their ownership, used as a basis of balancing accounts in bookkeeping and accounting; expressed as "assets equal to liabilities plus proprietorship" or "assets minus liabilities equal proprietorship."

Syn. accounting equation.¹⁸

Competency-Based Education - education which calls for the specification of competencies in measurable terms and the requirement that the learner demonstrate observable behavior changes in knowledge and/or skills. It also includes the use of systematic assessment procedures to document the attainment of competence.¹⁹

Conceptual Framework - the main ideas arranged as to the sequence and scope for teaching a unit or area of study.²⁰

Criterion Referenced Measurement - measurement against a standard of achievement of how well a student can perform. The instructor may require all students to get certain questions correct, an absolute standard.²¹

Curriculum Design - the way in which the components or parts of the curriculum have been arranged in order to facilitate learning and teaching.²²

Desired Learning Outcome - a necessary and specific component part of a lesson objective; sometimes referred to as a subobjective or subgoal; a statement of one of the desired changes in student behavior for a given lesson; a criterion for planning, conducting, and evaluating a lesson.²³

Equation Approach - the accounting equation is used to present the accounting cycle. Consequently, a solid foundation of accounting concepts can be laid without the use of accounts, journals and accounting jargon. With this foundation, students learn the why before the how.²⁴

Goal - a substance, object, or situation capable of satisfying a need and toward which motivated behavior is directed.²⁵

Individualized Instruction - a type of teaching-learning in which the teacher gives consideration to the individual learner; examples are (a) guided independent study, which permits pupils at any grade level in any subject area to work at their own pace under the guidance of a teacher; (b) diversified activity individualization, which allows the pupil to repeat activities using multiple materials or experiences

until he demonstrates accurate mastery; (c) creative-activity individualization, which permits the pupil to engage in choice-making in studying problems and to plan his own activities, choose between various approaches, and correlate results from other curriculum areas.²⁶

Instructional Objective - a definite learning specification in behavioral terms; it states exactly what the student should be able to do after having received the instruction.²⁷

Instructional Process - the methods of instruction used to bring about desired change or learning.²⁸

Learning Process - behavior change concerned mainly with the acquisition of new strategies and methods.

Mastery Formula - a term used by Morrison (1923) to designate an instructional procedure recommended for securing mastery of subject matter as defined as "pre-test, teach, test, the result, adapt procedure, teach and test again to the point of actual learning."³⁰

Module - a self-contained, independent unit of a planned series of learning activities designed to help the student accomplish certain well-defined objectives. It is a curriculum package intended for self study.³¹

Norm Referenced Measurement - measurement in which test items are modified and changed to insure that a normal distribution occurs.³²

Performance Objective - a statement in precise, measurable terms of a particular behavior to be exhibited by a learner under specified conditions. It possesses each of the elements or characteristics

listed below:

- a. Condition - the situation confronting the learner is clearly specified.
- b. Performance - the specified behavior expected of the learner is stated.
- c. Standard - the degree of acceptable performance is specified. This may be quantitative, qualitative, or both.³³

Programmed Instruction - instruction utilizing a workbook, textbook, or mechanical and/or electronic device programmed to help students attain a specified level of performance by (a) providing instruction in small steps, (b) asking one or more questions about each step in the instruction and providing instant knowledge of whether each answer is right or wrong, or (c) enabling pupils to progress at their own pace, either individually through self pacing or as a team through group pacing.³⁴

Programmed Instruction Package - all the components of a specific unit of programmed instruction, including the instructional materials, learning aids, instructor's guide or manual, pre- and post-test, validation data, description of intended student population, and learning objectives.³⁵

Task Analysis - reduction of components of a task to its basic behavioral elements, usually for the purposes of determining the best methods of training to perform it, but also to understand better the learning process.³⁶

Organization of the Study

In Chapter I, the introduction reported the background of the study, the statement of the problem, the purpose of the study, the need for the study, the limitations, the delimitations, and the definitions of the terms used in the study.

Chapter II described a review of the related literature in the study.

Chapter III outlined the methodology and the conceptual framework of the module.

In Chapter IV the study presented its findings.

Chapter V examined the summary, conclusions from the findings, and recommendations for future research. The conclusions from the findings provided the basis of the revised pre-test, post-test, and module in Appendix I.

CHAPTER II

REVIEW OF RELATED LITERATURE

A thorough review of the literature was conducted to support the purpose of the study. Two principle sources used in the review of literature included documents from Resources in Education (RIE) and the Education Index. A computer search from the Education Resources Information Centre (ERIC) with the following descriptors -- competency-based education, mastery learning, individualized instruction, learning modules, accounting and bookkeeping -- yielded fifty-nine studies and thirty-seven articles from professional journals.

The search was extended by investigating the Business Education Index for journal articles and dissertations specifically written on competency-based education and/or individualized accounting instruction. This search was complemented by an examination of the Dissertation Abstract Index. The October issues of the Business Education Forum were also scrutinized to discover other dissertations on competency-based education and/or individualized accounting instruction which may have been overlooked in the previous searches. The search was finally completed by writing a letter to the United States Office of Education (USOE) inquiring about the Consortium of the States, an agency responsible for the dissemination of curriculum material. The reply from the USOE confirmed that any curriculum material on competency-based education and/or individualized accounting instruction would be made available through ERIC.³⁷

The search of the literature was conducted at the Department of Education Library and at the Faculty of Education Library, the Faculty of Commerce Library, and Dafoe Library at the University of Manitoba.

The purpose of the review of related literature was twofold:

1) To provide an over view of the literature on competency-based education and/or individualized instruction. This was attempted under the following headings.

- I Definitions of Competency-Based Education and Individualized Instruction
- II Historical Background of Individualized Instruction
- III Individual Learning Differences
- IV The Search for Mastery: A Conceptual Foundation for Competency-Based Education

2) To cite the literature which supported the conceptual framework for the module developed in this study. The following categories formed this section of the review.

- V A Systems Approach to Competency-Based Education and Individualized Instruction
- VI Individualized Instruction in Accounting
- VII Modular Instruction

I. Definitions of Competency-Based Education
and Individualized Instruction

In much of the literature the terms, competency-based education and individualized instruction, were often said to be confusing because one term was sometimes substituted for the other term. The purpose of this section of the review of the literature was to give a brief account for this confusion by illustrating some of the more commonly accepted definitions of competency-based education and individualized instruction.

IA. Definitions of Competency-Based Education

Part of the confusion with the term competency-based education originated from two conflicting approaches -- the descriptive approach and the prescriptive approach.³⁸

IA1. The Descriptive Approach

The descriptive approach attempted to define competency-based education through practical situations. Under the descriptive approach, a definition of competency-based education was derived from the common elements which existed in educational programs.

IA2. The Prescriptive Approach

The prescriptive approach derived a definition of competency-based education from constraints which were imposed on programs and taken as given. The conditions, under the prescriptive approach, had two major functions: (a) they formed a theoretical base for the

definition of competency-based education; and (b) they became the prescribed criteria from which educational practice could be measured.⁴⁰

IA3. Description versus Prescription

Most of the literature on competency-based education favoured the prescriptive approach because educators were generally interested in the actual design and planning of competency-based education programs. As a result, educators were less concerned with the common elements which may have been prevalent in existing competency-based education programs.⁴¹ This belief led Spady to conclude that a viable prescriptive approach to competency-based education would consist of:

...data-based, adaptive, performance oriented set of integrated processes that facilitate, measure, record and certify within the context of flexible time parameters the demonstration of known, explicitly stated, and agreed upon learning⁴² outcomes that reflect successful functioning in life goals.

IA4. Other Definitions

A broad definition of competency-based education was defined by Hall and Jones as a process for educational change. According to these authors competency-based education has become the victim of inaccurate assumptions and has been thought of, incorrectly, as a simple process which can be applied by a simple "flip of the switch."⁴³

Most of the definitions of competency-based education were narrow and concentrated on student performance, standards, and flexible time periods. Graham, in his study of a first year college

accounting principles class defined competency-based education as:

...the specification of learning tasks in measurable terms, and the requirement that the learner achieve observable behavior changes in knowledge and/or skills to demonstrate competency before proceeding to more complex goals, and must suppress time as a defensible element.⁴⁴

Graham's definition of competency-based education agreed with others who related acceptable student performance to specific measurable outcomes. Torshen expressed these sentiments in her definition of competency-based education.

A competency-based education process begins by defining the outcomes each student is expected to gain. Then, the instructional program through⁴⁵ which each student can arrive at these outcomes is designed.

Concerning acceptable student performance, Torshen added:

The success of any competency-based education program is dependent upon the success in attaining the levels of performance that are essential for competency. Mastery, the attainment of adequate levels⁴⁶ of performance, is the goal of competency-based education.

The role of mastery in competency-based education received additional support from the Policies Commission for Business and Economic Education. The Policies Commission believed that mastery formed the conceptual foundation of competency-based education.

...competency-based education focuses on the mastery concept, which assumes that each student is capable of achieving a stated goal if relevant learning experiences and a flexible time period are provided. A statement of competence is comprised of⁴⁷ a description of the task plus a standard of performance.

Popham, Schrag, and Blockhus provided another dimension to competency-based education -- the business educator's expectations of students as potential workers and consumers.

The competency -- an essential task performed by a worker or consumer at a stated standard -- forms the core of competency-based education. The business teacher selects

competencies needed by effective entry-level workers, consumers, and citizens and proceeds to implement the teaching-learning system.⁴⁸

These definitions illustrated many characteristics of competency-based education, and yet despite the many different characteristics there were common elements. Some of these common elements included acceptable student performance, measurable student outcomes according to a pre-set standard, a flexible time period, and the mastery concept. Also, while many authors gave a strict or narrow definition of competency-based education, others related competency-based education to larger issues such as educational change.

Perhaps one of the best methods of coming to some idea of what competency-based education really meant was developed by Glick and reaffirmed by Erickson. These authors illustrated an accurate meaning for competency-based education by comparing it to conventional classroom instruction. According to Glick and Erickson the conventional premises which governed the traditional classroom were:

1. The content of the curriculum is selected by the teacher and is presented to the students by the teacher.
2. All students are expected to learn the key concepts and facts as they are presented within the same time frame using the basic materials.
3. Objectives are general in nature and are designed to guide the teacher; often students have little or no knowledge of such objectives.
4. Evaluation is norm referenced with individual student performance measured against the performance of the group.
5. Teaching is applied in a uniform manner to all students.⁴⁹

A competency-based education program rejected the conventions of traditional classroom instruction. Glick and Erickson

believed that competency-based education was desirable because of the following principles:

1. The content to be learned is developed and sequenced in terms of "competencies" to be mastered by the students. In addition, the individual student may select or be assigned other competencies to be mastered according to the student's personal interests or goals.
2. Students learn at their own rates and move on to new material or new learnings only when they have mastered the competencies of a particular unit of instruction.
3. Based upon individual learning style, the student is assigned, or self-selects, materials and instructional settings which are designed to aid in the development of each competency.
4. Objectives are stated in performance terms, they are written in language appropriate for the learning level, and they are shared with the students.
5. Evaluation is both formative and summative with all summative evaluation being criterion referenced. Individual student performance is measured or evaluated against the criteria given with the performance or competency-based objective.
6. Instruction is designed and varied according to the needs and interests of the individual student.⁵⁰

Glick's description of competency-based education added much to the previous definitions. Unlike some definitions which were abstract and impractical, Glick's description of competency-based education was concrete and applicable for curriculum design and planning. Also, Glick's description of competency-based education illustrated the similarities between competency-based education and individualized instruction which becomes more evident after reading the next section of this chapter.

IB. Definitions of Individualized Instruction

Individualized instruction like competency-based education continued to be the recipient of many definitions. Also, like competency-based education the definitions for individualized instruction covered a wide range from a general theory of education to much narrower outlooks, such as adapting classroom instruction to the individual student. This section of the review highlights some of the more popular definitions of individualized instruction.

In a report entitled "Individualization in Schools" the National Schools Public Relations Association defined individualized instruction as:

...the right of every individual to acquire an education with the school system in his own way and at his own rate of learning. It means adapting the school system to the individual, rather than the other way around. It means harnessing all the techniques of modern education, communication and technology to assist the individual towards self-development and self-fulfillment. In this light, individualization is a cart as 'the wave of the future'.⁵¹

Gibbons described individualized instruction as a "phylum rather than a species."⁵² According to Gibbons individualized instruction consisted of a group of approaches adapted to the student's individual learning needs. Because individualized instruction referred to such a variety of approaches Gibbons concluded that the term individualized instruction used by itself was almost meaningless.⁵³

Hedges listed the following eight factors of individualized instruction to illustrate the importance of the student in the learning process.

1. Students do not leave one unit and begin a new one until they have attained a pre-determined level of proficiency in the former unit.
2. Students must be allowed varying amounts of time (and practice) to achieve mastery of specific instructional goals.
3. Permitting students to proceed at varying rates necessitates provision for frequent and diagnostically oriented evaluations of each student's progress.
4. The teacher's role changes to learner-manager.
5. Students become more actively involved in the learning process than before by assuming more responsibility for their own development.
6. With individualized instruction, almost every child becomes a teacher part of the time.
7. Our classrooms must be arranged differently in a physical sense.
8. We must begin to apply systems analysis approaches as learning centers.⁵⁴

Hedges factors of individualization were similar to Gronlunds common elements of individualized instruction. Gronlund believed that all individualized instructional programs were characterized by the following elements:

1. A series of units (or modules) of instruction.
2. Instructional objectives stated in behavioral terms.
3. Self-paced instructional procedures.
4. A wide range of instructional materials and media.
5. A well-developed testing and evaluation system.
6. An instructional setting that provides easy access to learning resources.
7. Flexible time scheduling.
8. A systematic procedure for managing the program.⁵⁵

Like Gibbons, Gronlund believed individualized instruction involved a variety of teaching strategies to satisfy each student learning need. Gronlund further added that: "individualized instruction should not be thought of as one particular program," which confirmed Gibbons conviction that individualized instruction was a phylum rather than a species. Although Gronlund admitted there were a variety of individualized instructional programs he identified three of the more popular forms of individualization.

1. Individualized instruction may range from minor modifications in group instruction to completely independent learning.
2. Individualized instruction may permit variation in any of the following: rate of learning, the objectives pursued, the methods and materials of study, and the required level of achievement.
3. Individualized instruction may be used in all subjects, in some subjects, or with particular students.⁵⁷

Heathers agreed with the general consensus that individualized instruction occurred in a variety of classroom settings. According to Heathers the student should have an active role in the selection of the learning goals in his or her educational program.

Education is individualized...as the learning goals an individual pursues, and the means by which he works towards them, are selected for and by him. Individualization is not limited to independent learning or learning in a tutor-student dyad. Depending on the learning goal and learner's characteristics individualized instruction can also occur in group contexts. Individualization is fostered through emphasizing student involvement in choosing and conducting learning activities. Managing individualized instructional programs in schools depends greatly on student self direction accomplished either through using programmed materials or through students developing competencies in selecting, planning, and conducting learning tasks.⁵⁸

Although there are many more definitions of individualized

instruction these illustrated a reliable sample of common definitions found in the literature. Basically, individualized instruction represented a philosophy of education which catered classroom instruction to the individual student. The individual student played an active role in the selection of appropriate teaching strategies which were required to meet his or her learning needs. Individualized instruction occurred in the context of a regular classroom or it was an independent learning experience. Flexibility was needed both in the school's physical setting and incorporated into the instructional program if individualized instruction was to be a reality.

Summary of Definitions of Competency-Based Education
and Individualized Instruction

This section of the review began by calling attention to the fact that competency-based education and individualized instruction were confusing terms because they were often used interchangeably. Perhaps a better explanation was that some common characteristics of both competency-based education and individualized instruction such as a flexible time period, the measurement of student outcomes to a specific standard or mastery, and the importance of the individual student, suggested that there was some overlap between competency-based education and individualized instruction which led to the belief that the two terms were the same. Unfortunately, the more the terms, competency-based education and individualized instruction were defined the greater the similarities became and ultimately this led to a confusion between the two terms which remains unsolved and is still

prevalent in the literature.

II. Historical Background of Individualized Instruction

If one assumes individualized instruction as instruction catered to the individual, then individualized instruction existed since time began. If, however, individualized instruction is considered as a systematic instructional method with many of the characteristics described earlier, individualized instruction was a much more recent development. This section of the review of literature discusses the latter description of individualized instruction.

As early as 1888, Preston Search instituted the first program in Pueblo, Colorado which allowed students to proceed at their own learning rate. In the Pueblo Schools daily recitation was abandoned as the typical characteristic of instruction.⁵⁹

In 1896 John Dewey called for a free student-centered approach based on student experiences. Dewey called this approach the individualized curriculum.

An individualized curriculum is not static in character, but which administers constantly to the changing needs and interests of the growing child's experience. It involves careful arrangement of the physical and social set up of the school and a discriminating search for subject matter which will fulfill and further the growth of the whole child.⁶⁰

The earliest of the more sophisticated systems of individualized instruction was the Burk Plan initiated by its founder in 1913. The Burk Plan, also known as the "Individual System" permitted students to progress at their own learning rate. Daily class assignments in the form of recitation were abandoned and students were tested after they had completed the course requirements. The

results of the "thorough test" as it was called, determined whether or not the student would be promoted to the next grade. The thorough test was the criteria for acceptable student performance. According to Burk acceptable performance was achieved when:

...a student reached the standard of the grade in thoroughness in any subject, he would be promoted to the next grade in that subject. Each student mastered by himself all the work necessary to reach the grade standard as shown by the "thorough" test. If he were weak in any one place, he was given repair exercises until he was "thorough". Under the individualized system, students varied in the time required to complete a unit of work, but they were practically identical in "thoroughness" results.⁶¹

The importance of the Individual System was that it systematically put into practice ideas which were developed by Search and Dewey. The Individual System paved the way for two of the most famous attempts to individualize instruction -- the Dalton Plan, and the Winnetka Plan.

In 1920 Helen Parkhurst introduced to the city of Dalton the first contract learning system, which became known as the Dalton Plan. Academic subjects were divided into a series of tasks or contracts. Thus, the Dalton Plan represented the first dedicated effort to sequentially plan learning tasks for all academic subjects.⁶²

The most thorough individualized instructional system was the Winnetka Plan, developed by Carlton Washburne.⁶³ The Winnetka Plan has been described as a point of departure from previous individualized programs because of the sequential specificity in the following procedures: the preparation of instructional objectives;

the use of pre and post tests; the development of instructional materials for achieving each objective; a scheme for developing individual lesson plans; and a monitoring system of guiding students through the curriculum.⁶⁴

A unique feature of the Winnetka Plan was the importance of instructional objectives. Unlike the previous attempts to individualize instruction the Winnetka Plan was the first system to use instructional objectives as the framework for the development, organization, and selection of learning activities in the curriculum. The Winnetka Plan certainly allowed for the development of more elaborate individualized instructional systems which were to follow in the future.

III. Individual Learning Differences

Competency-based education and individualized instruction was supported in the psychological literature dealing with the cognitive process. This section of the review describes and provides a brief overview of the support.

Alvin C. Eunich of the Ford Foundation summarized five principles of learning which dealt with the learning process. These learning principles encouraged active student involvement through responsibility.

1. Whatever a student learns he must learn for himself -- no one can learn for him.
2. Each student learns at his own rate, and for any age group, the variations in rate of learning are considerable.
3. A student learns more when each stage is immediately strengthened or reinforced.
4. Full, rather than partial mastery of each step makes total learning more meaningful.
5. When given responsibility for his own learning, the student is more highly motivated; he learns and retains more.⁶⁵

Learning, as described by Gagné, referred to a positive change in behavior which increases the student's cognitive growth. This growth was permanent and developed through "learning situations."

More exactly, Gagné stated:

Learning is a change in human disposition or capability, which can be retained, and which is not simply ascribable to the process of growth. The kind of change called learning exhibits a change in behavior, and the influence is made by comparing what behavior was possible before the individual was placed in the "learning situation" and what behavior can be exhibited after such treatment. The change may be, and often is, an increased capability for some type of performance. It may also be an

altered disposition of the sort called "attitude" or "interest" or "value". The change must have been more than momentary permanence: it must be capable of being retained over some period of time. Finally it must be distinguishable from the kind of change that is attributable to growth, such as a change in height or the development of muscles through exercise.⁶⁶

Gagné described learning as a permanent change in human growth distinguishable from physical growth. This description of learning implied an understanding of learning structure. In the literature on individual learning differences learning structures were used to identify learning from other forms of changes in behavior. These learning structures included:

1. Signal learning or stimulus-response learning. It is acquired as a result of conditioning and involves the student making a specific response to a specific stimulus.
2. Chain learning consists of a rigid sequence of two or more previously learned signals which must be carried out in a predetermined order.
3. Multi-discrimination learning which involves distinguishing one category or one phenomena from another.
4. Concept learning where students make a generalization about a whole class of phenomena that may differ from each other in outward appearance. In concept learning, the student may either generalize within the class, or he/she may discriminate between two classes.
5. Principle learning which consists of a chain of two or more concepts.⁶⁷

The recognition of a specific learning structure for individual learning differences called for instructional situations which allowed individual student learning to take place. As early as 1911 Thorndike recognized the need for specialization in instruction to accommodate individual learning differences.

Specialization of instruction for different pupils with one class is needed as well as specialization of the curriculum for

different classes. Since human nature does not fall into sharply defined groups, we can literally never be sure of having a dozen pupils who need to be treated exactly alike.⁶⁸

Specialization of instruction was also recognized in other studies. Impellitteri and Finch attempted to group many factors to account for the variability of student achievement in three dimensions -- student abilities, student background characteristics, and student affective characteristics.⁶⁹ In addition some authors were concerned with the relationship between measures of individual relationships and learning variables,⁷⁰ and other authorities were concerned with the ways students learned.⁷¹

Despite the associations between such variables as student abilities, background, and so on, learning rate was determined to a great extent, by the amount of time available for learning. Powell expressed this sentiment when he described learning rate in terms of "velocity."

Within the range of normal development abilities are not stationary, although admittedly they can enter into an abeyant state. Children grow, develop, mature, and learn, but each at a different rate of velocity. The term velocity implies direction. Pupils' rate of change in a given direction not only changes but fluctuates. Each child has his own built in velocity system: and even with youngsters who apparently have the same rate, their cycling process (rate of fluctuation) often operates on a different calibrated scale.⁷²

Identifying the need for a flexible instructional process to satisfy the individual student learning differences led to the development of the most recent successful teaching strategy -- mastery learning, which is described in the next section of this chapter.

IV. The Search of Mastery: A Conceptual Foundation
for Competency-Based Education

The Mastery Model

Mastery learning, a relatively new teaching strategy, was developed by Benjamin Bloom and his associates at the University of Chicago. The teaching strategy employed by Bloom was based on an earlier model of school learning; this model of school learning originated with John B. Carroll. As a result of a great deal of research the mastery learning teaching strategy was further refined and a workable model was produced in the 1970s. Many studies verified mastery learning as an extremely successful teaching strategy. The success of mastery learning model was not limited to the United States as some successful studies based on mastery were completed in Europe.⁷³

IVA. Development of the Model

In 1963, John B. Carroll, an educational psychologist at Harvard University, developed a model for school learning which questioned some of the assumptions educators believed were absolute truths.⁷⁴ Carroll's model was oriented around the learning task, which varied in size and complexity. Carroll estimated that the bottom five per cent would take about five times as long as the top five per cent to master a particular learning task. Thus it was conceivable, Carroll believed, for most students to learn a concept if he or she was given sufficient time.

The model for school learning consisted of five elements.

Three of the elements which resided in the individual student included: (1) aptitude -- the amount of time needed to learn the task under optimal conditions; (2) the ability to understand instructions; and (3) perseverance which referred to the amount of time the learner was willing to engage in the process of learning. The two external factors of the school learning model were: (4) opportunity -- the time allowed for learning; and (5) quality of instruction -- a measure of the degree to which instruction was presented so that it would not require additional time for mastery beyond the student's aptitude.⁷⁵

The complete model proposed by Carroll was presented in equation form.

$$\text{Degree of school learning} = f\left(\frac{\text{time spent}}{\text{time needed}}\right) \quad \text{or:}$$

the degree of school learning will depend on the time the student actually spent in learning relative to the terms he/she needed to spend.⁷⁶

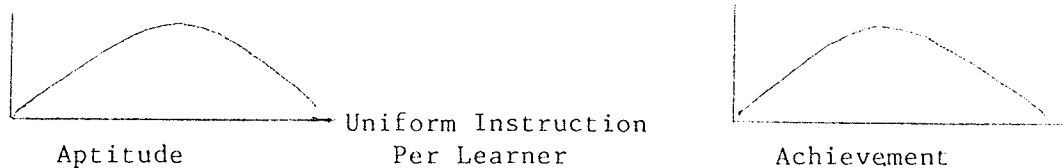
Carroll expanded the equation to include the five student variables (three individual variables and two external variables) in the following manner:

$$\text{Degree of school learning} = f\left(\frac{1. \text{ Perseverance } 2. \text{ Opportunity to learn}}{3. \text{ Aptitude } 4. \text{ Quality of Instruction } 5. \text{ Ability to Understand}}\right)$$

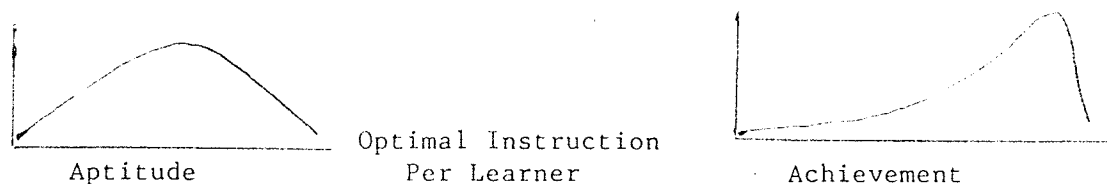
or the degree of school learning of a given subject depends on the student's perseverance or his opportunity to learn, relative to his aptitude for the subject the quality of instruction and his ability to understand this instruction.⁷⁷

Bloom transposed Carroll's school learning model into a workable mastery learning model by adjusting the normal distribution curve. According to Carroll aptitude was determined by the learning rate not the achievement level.⁷⁸ It was the variance of time,

Carroll believed, which allowed some students to learn more than others. Bloom argued that if students were taught using the same method of instruction and placed according to their aptitude level the end result would be a normal distribution learning curve.⁷⁹ If the method of instruction were the same for all students the variables of aptitude would have an identical relationship, as illustrated in the following graph.⁸⁰



Bloom did not believe that this normal distribution curve was desirable for student learning. Instead, Bloom promoted Carroll's idea of increasing the time variable for the slower learner. Thus, if more time was added to the instructional process for the slow learner and less time for instruction was needed for the more advanced students, then it was possible for all students to learn the same content area. As a result aptitude would have little or no relationship to achievement for all students. Bloom presented this idea in the following graph:⁸¹



Bloom believed that the existing educational system in the United States was destructive to the student's self concept because teachers actually expected a normal distribution curve, and as a

result, a self-fulfilling prophecy was embedded in public education. Bloom described the negative effects of the self-fulfilling prophecy in the following quotation:

This set of expectations ... reduces motivation for learning in students, and it systematically destroys the ego and self concept of a sizable group of the students who are legally required to attend school for ten to twelve years under conditions which are frustrating and humiliating year after year. The cost of the system in reducing opportunities for further learning and in alienating youth from both school and the community at large is so great that no society can tolerate for long.⁸²

IVB. Components of the Mastery Model

The mastery model, perfected in 1971, contained six components: objectives, preassessment, instruction, diagnostic assessment, prescription, and post-assessment. A variety of teaching methods can be adapted to the mastery model. The mastery model was flexible because it could be adapted to an entire class, or a small group of students, or it could be used on an individual student contract basis. A description of the components of the mastery model, which follows, illustrated its detail and flexibility.

Objectives: are stated in behavioral terms to measure specific outcomes. These behavioral objectives identify specific concepts of skills and represent a sample from the domains of competence. There is a minimum level of performance which a student must master before going on to the next learning task or unit. These levels are known as mastery levels or minimum pass levels.

Preassessment: is where assessment is identified before the student begins a particular unit. The teacher may use the students prior performance on achievement tests and the students overall academic history record from other courses. This information can be incorporated into the preassessment process.

Diagnostic Assessment: provides information on how well a student is achieving a particular unit. The assessment measures what each student has learned and where he/she may need additional

instruction. This information is used to pace the individual's student learning and improve on areas not already mastered. This test is criterion-referenced to measure the student's competence level. This component is essential to adapt instruction to the needs of the individual student.

Prescription: consists of instructional activities recommended from the diagnostic assessment. If the diagnostic assessment indicates that the student needs more instruction remediation is provided. Relocation is prescribed when the diagnostic assessment indicates that the student does not have the pre-requisites to perform successfully in the instruction or whether another objective might be more appropriate. In relocation, the student may either pursue another topic or receive special instruction to develop the prerequisite skills before continuing the programs. Enrichment materials are provided to students where it is felt that additional work may benefit the student. Although the diagnostic assessment indicates that the student has achieved a level of competence for a particular task, enrichment allows for the possibility of further retention when the student is given remedial work he/she works through the process until he/she has mastered a particular objective or learning task. This is determined by the diagnostic evaluation. This procedure, known as recycling, is continued until the student has mastered the necessary skills or when the student has been placed in another objective sequence.

Post-assessment: is the final component of the mastery model. The diagnostic assessment component which was previously described used criterion-referenced tests to measure the student's level of performance when he/she completed a particular learning task. Diagnostic tests are administered throughout the course of instruction. These criterion-referenced tests make up the formative evaluation component of the mastery learning model. When the student completes the entire requirements and has written all of the tests which make up the formative evaluation, he/she is given a final examination known as summative evaluation. The student must pass or meet the criterion set on the final examination to receive a pass in the course.⁸³

The mastery model was important to business education in the development of a competency-based accounting module because any existing accounting curriculum can be adapted to the model. Also, it was an inexpensive way of preparing instructional materials, which was of extreme importance during times of budgetary constraints.

Given these conditions, it was no wonder that John Williams believed mastery learning to be one of the most effective methods for innovative instruction in business education.⁸⁴

V. The Systems Approach to Competency-Based Education
and Individualized Instruction

The systems approach to competency-based education and individualized instruction has been extremely positive, and as a result, there has been much supporting evidence found in the literature. The purpose of this section of the review was twofold: (1) to discuss some of the popular definitions for "system" and "systems approach" and; (2) to describe some of the more prevalent systematic instructional designs which have been used in competency-based education and individualized instruction.

Webster's New World Dictionary defined a system as "a set or arrangement of things so related as to form a whole."⁸⁵ The systems approach in education has received a similar definition to Webster's. Davies, for example, described the systems approach as:

Isolated parts can rarely provide adequate information about the functions fulfilled by each of its components. Such an approach is nothing more than application of the Gestalt concept that the whole is greater than a simple summation of its parts.⁸⁶

The importance of the systems approach in education, therefore, was to arrange parts of the system sequentially so that each part contributes to the whole and yet does not detract from the whole.

McArdle and Moskovis described the systems approach as a "logical process of decision-making used in designing a system."⁸⁷

The discussion of a system, or systems approach, led to a description of what was entailed for systematic instructional design. Authors who wrote about the value of systematic instructional design



promoted the behavioral sciences point of view. These authors expressed the concern for the learner as the centre of the curriculum and stressed the importance of behavioral objectives.

Impellitteri and Finch verified the importance of the learner and objectives in their description of a systematically structured curriculum. More exactly, these authors stated:

...a systematic structuring of material from the learner's point of view, resulting in a logical, functional, step by step path whereby the learner proceeds from his personal starting level toward the accomplishment of previously set performance objectives.⁸⁸

Mager also a strong believer in the behavioral sciences, described educational technology as a software approach to systematic instructional design. More specifically, Mager described educational technology as:

...the application of learning principles to the direct and deliberate shaping of behavior. It's origins lie in the application of behavioral sciences to the problems of learning and motivation: mechanization is purely seen as a problem of presentation. The view of educational technology is closely associated with modern principles of programmed learning, and is characterized by task analysis, writing precise objectives, selection of appropriate learning strategies, reinforcement of correct responses, and a constant evaluation.⁸⁹

Impellitteri and Finch, and Mager's convictions to the systems approach to instructional design was well supported by those who desire structure in the organization of the curriculum. This notion of structure was expressed by Bruner who believed that structure made subjects more comprehensible, promoted memory, fostered the transfer of learning, and narrowed the gap between advanced and elementary knowledge.⁹⁰ Klingstedt also believed that structure was desirable

because human beings demanded it.⁹¹

Although there were many instructional designs which used the systems approach for their conceptual base three of the more popular systematic instructional designs included PLAN, PEP, and IPI.

PLAN (Program for Learning in Accordance with Needs) was developed by the American Institute for Research and the Westinghouse Learning Corporation. PLAN used commercially prepared curriculum materials including educational media. These materials were contained in TLU's (Teaching-Learning Units). In PLAN the student had an active role in selecting his or her own objectives to meet both short and long term educational goals. PLAN was available for reading, language arts, mathematics, science and social studies for grades one through twelve.⁹²

PEP (Primary Elementary Project) was an individual model for urban elementary school students. Students were checked at various stages and given corrective feedback procedures if they did not meet the stated objectives. PEP was implemented in the following curriculum areas: introductory mathematics, classification and language, beginning reading, and perceptual development.⁹³

IPI (Individually Prescribed Instruction) was one of the most popular individualized instruction programs developed in the United States. IPI was developed by Drs. Glaser, Bolvin, and Lindvall in cooperation with the University of Pittsburgh and Baldwin-Whitehall Public Schools, located in a suburb of Pittsburgh. IPI was totally individualized and students entered and exited from various stages in the system when they successfully completed the behavioral ob-

jectives. Written prescriptions also guided the student through the curriculum. IPI has been developed in mathematics, reading, and science for elementary students from Kindergarten through grade six.⁹⁴

Although PLAN, PEP, and IPI were systematic instructional systems which existed for general curricula in the United States, the notion of a systematic approach to competency-based education and individualized instruction had been very popular in business education, especially in accounting. The next section of the review describes some of the better known studies which used the systems approach to individualized instruction. Although these studies were categorized as individualized instruction, the principles of competency-based education, and mastery, form the conceptual framework for the student to progress through the accounting curriculum.

VI. Individualized Instruction in Accounting

In a recent review of literature on individualized instruction Schooley described the contributions of doctoral dissertations in high school bookkeeping and college accounting instruction. What follows, then, is a summation of Schooley's review.

Three studies in the area of high school bookkeeping involved the development of instructional materials, and self-paced studies.⁹⁵

Harbarger wrote an original textbook for his research and compared it with an authorized textbook.⁹⁶ He used four experimental classes and three control groups in the research design. The four experimental classes included: (a) a conventional teaching methodology of instruction using the publisher's text; (b) a self-study group which used the publisher's text; (c) a conventional teaching methodology of instruction using Harbarger's text; and (d) a self-study group which used Harbarger's text. Although a minimum rate was required, the self-study group determined their own rate of progress.

The findings of Harbarger's study indicated that students did better using the traditional text in the area of specialized journals regardless of the instructional method. On the balance sheet, however, students who used the self-study method did better than the students taught by the conventional teaching method. In the area of theory, Harbarger stated that students who used the publisher's text and the conventional teaching method performed better than those students who used the self-study method and Harbarger's text. There was no

significant difference, using either textbook or teaching methods, in the areas of the income statement, closing entries, and the worksheet, in the total post-test scores. Harbarger concluded that self-study students can achieve as well as those who use published textbooks in a conventional teaching setting.⁹⁷

Huston analyzed the effect of programmed instruction in the development and testing of a unit for high school bookkeeping.⁹⁸ The programmed instructional units were developed to meet the needs of individual students in accordance with reliable learning theories. The findings of Huston's study concluded that: (i) a majority of students responded favourable to programmed instruction; (ii) boredom appeared to be the most frequent objection; and (iii) there were many limitations with individualized instruction. One basic limitation was the inability of some of the instructional materials to meet the learning needs for individual students. Some advantages of the study however, included the provision for individual differences, learning had a set-pace for students, immediate knowledge of results were attained, there was teacher flexibility in the classroom, and there was evidence that instructional time could be saved by using programmed instruction.

Gibbs developed programmed materials for the beginning book-keeping cycle for twenty high school bookkeeping classes.¹⁰⁰ Gibbs hypothesized that students would attain a high level of achievement if students were taught by programmed instruction rather than the traditional method of classroom instruction. The research design included ten classes taught through programmed instruction and ten

classes taught by the traditional method.

The findings of Gibb's study indicated that: (1) when the class mean scores were compared there was no significant difference regardless of the method of instruction; (2) there was a difference of .01 to .05 for the traditional method in the students who had average to high achievement ability; and (3) the programmed instruction treatment produced superior results for the lower ability student up to the .05 level. These findings indicated to Gibbs that programmed instructional material should be developed for the lower ability student and that further research should investigate the findings for using a combination of programmed approach and traditional method for the higher ability student.¹⁰¹

Research in college and university accounting instruction was dominated by the use of programmed instructional materials. Glover,¹⁰² Orefice,¹⁰³ Cloud,¹⁰⁴ and Hileman¹⁰⁵ found that there was no significant difference between the traditional method of instruction and using programmed instructional materials.

In a study of accounting principles Butt and Prickett compared a programmed instructional method, an audio-tutorial laboratory, and a traditional laboratory setting.¹⁰⁶ Students were assigned to either the control group, the audio-tutorial group, or the programmed instructional group. All three groups used the same textbook and received the same lectures, however, the laboratory setting differed for each group. Despite the different laboratory settings the adjusted mean scores did not differ significantly for either group. Therefore, Butt

and Prickett concluded that the programmed instructional method combined with an audio-tutorial laboratory made it possible to attain an equal achievement level with the controlled laboratory setting. Also the use of programmed instructional and an audio-tutorial laboratory made it possible to handle larger enrollments in accounting principle classes without the use of additional teaching staff.¹⁰⁷

Singer developed an experimental first year course in accounting designed to individualize time and method. There were two groups in the study.¹⁰⁸ One group used programmed materials to accompany the textbook, while the other group used only programmed materials without the aid of a textbook. Students also had the option of attending a traditional classroom setting using the lecture method, or students could work independently. Students who used the individualized approach wrote progress tests at the end of each unit. Although the control group did better than the conventional group, there were two problems: one problem was that some students allowed too much time to elapse between tests; and the other problem was that the semester proved to be a time restraint for the attainment of mastery. However, Singer concluded that the problem was not so much with the instructional method but the problem occurred because of the design of the instructional materials.¹⁰⁹

In the final study, described by Schooley, Speer felt that his individualized method, which allowed students to proceed according to achievement ability and desire, was the best method.¹¹⁰ In his study, the materials were designed sequentially from simple to

complex. Speer found that despite the quality of his instructional material, the above average or average student, who was interested in accounting, performed best under individualized instructional programs. Speer concluded that his instructional method was not appropriate for the below average student because too much emphasis was placed on application problems which involved too many theoretical components. Speer felt that individualized instruction, generally, appealed to both the above average student and the poor student, providing that they were interested in the subject area.¹¹¹

The "Review of Research" section in the October 1976 issue of the Business Education Forum included a summary of a dissertation relevant to this study. The dissertation, entitled, A Process for the Design of Individualized Learning Units Implemented in a Competency-Based Learning System for Accounting by John Edward Graham, concerned the development of a process for designing individualized learning units for a college accounting principles class.¹¹²

Thirty-one students at Robert Morris College, where the study was conducted, were taught the first two units by group instruction, and the third unit, which dealt with the trial balance and preparation of financial statements, was designed by Graham using the principles of competency-based education and individualized instruction. The students were guided through Graham's learning system in accordance with these principles.

The unit used in Graham's study was developed in accordance with a nine step format for rationales, goal setting methods and materials, and assesment. The rationales contained the framework

which was used throughout the entire study. The students generally favoured the individualized learning system for accounting principles designed by Graham.¹¹³ Some of the student's comments included:

I think it is easier to learn this way because if you don't understand something the first time you can always stay with the problem until you understand it without getting behind.¹¹⁴

Personally, I am in favour of this type of teaching. I feel it gives the student a chance to work at his own pace with no pressures on him. It also gives him the chance to question certain ideas and material that he would have otherwise been too embarrassed to ask in a full class.¹¹⁵

I feel if I am ahead of a majority of the class I get bored with the material and become lazy. I liked the independence of the teaching; the film presentations and slides illustrated the principles well.¹¹⁶

I think it was great. Every little thing in the chapter was covered, and you really learned a lot more by working at your own speed.¹¹⁷

I liked it because I did learn from it. It took a little more time than I really wanted to spend but it was worth it.¹¹⁸

Graham's study yielded these findings: (a) students participating in the study began instruction with different entering behaviors; (b) although the students had different entering behaviors, they all achieved the mastery level set in the behavioral objectives of this unit; (c) for various reasons, students did not achieve mastery at the same time; and (d) it was recommended that the proposed model be expanded to cover an entire semester to determine its effectiveness, and the model also should be adapted for teaching other business courses.

Revisions were made to Graham's model in the winter terms of 1975 and 1976. The results were positive.

Since Graham's study, many of the faculty at Robert Morris College have accepted individualized instruction and competency-based education as an effective approach for classroom instruction. Some of the faculty adapted Graham's model for their own subjects, while others wrote their own units using competency-based and individualized instruction principles. The growing acceptance of competency-based education and individualized instruction and faculty support at Robert Morris College illustrated that this form of instruction is one way of meeting the individual learning needs for their student population.¹¹⁹

The doctoral dissertations described in this section of the review of literature suggested that the principles of individualized instruction and competency-based education were an extremely efficient method for the teaching of accounting. Furthermore, the associated success with the replication of Graham's study indicated that the principles of competency-based education and individualized instruction should be applied to high school accounting so that it too has a better chance for success. The review of the doctoral dissertations showed the lack of research in high school accounting and strengthened the purpose for developing this study.

VII. Modular Instruction

One of the most efficient ways to individualize instruction, or to implement a competency-based education system, was through the use of modules. This technique was known as modular instruction. This section of the review describes the essence of modular instruction and illustrates the components of a module by referring to specific examples found in the literature.

In the following quotation, Jones and Hall, defined modules, and described how the learner progresses in modular instruction.

CBE (Competency-Based Education) programs frequently use "modules" as delivery systems for instruction. A module is a learning unit with stated objectives, a pretest, learning activities to enable students to acquire competencies that the pretest has shown to be lacking, and a competency evaluation to measure success.

A module usually focuses on a simple competency or a discrete set of competencies, and the ability to demonstrate these competencies satisfies the requirement of the module, whether the learner performs the module's enabling activities or not. The learner usually works through the modules individually or in small groups at his own speed. Modules are usually self-contained so that the teacher is not always an essential in the learning of the competencies specified for a given module. The instructor's role is that of an additional source and guide to the learner, but many learners may not require the instructor's input at all levels to achieve the module's objectives.¹²⁰

In modular instruction the instructor had a dual purpose -- teaching and managing. As a teacher-manager, the instructor in modular instruction became involved in four areas.

- (a) planning: the work a teacher does to establish learning objectives.
- (b) organizing: the work the teacher does to relate learning resources, so as to realize these objectives in the most effective, efficient, and economical way possible.
- (c) leading: the work the teacher does to motivate, encourage

- and inspire his students, so that they will readily realize learning objectives.
- (d) controlling: the work the teacher does to determine whether his organizing and leading functions are successfully realizing the objectives which have been set. If the objectives are not being realized, then the teacher must reassess and regulate the situation -- not change his objectives.¹²¹

Modular instruction had three distinct advantages to traditional classroom instruction: (i) the teacher was seen as a cooperator in the learning process because students were guided by the objectives stated in the module; (ii) the teacher assisted the student through the module when he/she needed it; and (iii) there was no time restriction in modular instruction, so the student could progress at his/her own rate.

Modular instruction allowed for flexible scheduling. Because some education institutions had specific entry-exit dates, while others were very flexible, students could usually enter and exit more often than an educational institution which did not allow for flexible scheduling. Therefore, modular instruction had the advantage of allowing students to enter and exit throughout the curriculum after the student had successfully mastered the unit objectives.

In a three year study at Northeast High School in St. Petersburg, Florida, Forr and Yerkes listed eight advantages of modular instruction.

1. There was more time to study.
2. Students were able to learn at their own rate.
3. There was better opportunity for the development of responsibility and self-discipline.
4. Schools are more relaxed and challenging.
5. There is a better attitude towards the school.

6. Students were able to learn more with variations in class size and techniques.
7. Students were able to participate in class discussions.
8. There was a more relaxed atmosphere.¹²²

These findings were similar to a study by David Blume where he described a modular schedule for a two-year high school. In his study, modular scheduling was allowed for all business subjects. The success of the program was proclaimed by Blume in the following passage:

McHenry teachers (the study was conducted at McHenry High School West, McHenry, Illinois) are very satisfied with the modular scheduling. It is felt that this valuable tool can be used to help meet the needs of each individual student and is a partial solution to many of the problems facing business education on the secondary level.¹²³

VIIA. Components of a Module

Most modules were characterized by the following components: behavioral objectives, learning resources, learning activities, and performance measures. These components allowed for flexibility in instruction so that a variety of teaching strategies could be employed to satisfy the different learning rates prevalent in the students learning structure.¹²⁴

Hall and Jones presented five categories which were typical of most modules. Although these categories were not identical to all modules they served as a general summary of the main ideas on the modular instructional format found in the literature. More specifically, these components included:

1. Prospectus: a statement of rationale to the learner.
2. Statement of Objectives: a behavioral statement of the most

- important learning outcomes.
3. Preassessment: a test used to determine the learner's need and readiness for the instructional activities.
 4. Alternative Enabling Activities: a multi-path set of learning activities designated to facilitated learning the behaviors described in the objectives.
 5. Postassessment: a test to determine whether of not the learner can perform the behaviors described in the objectives.¹²⁵

VII B. Rationale for Sequencing Components

The components of a module were arranged to allow students to master the competencies stated in the performance goals and the behavioral objectives. The performance goal was the main idea for a series of objectives. The overall or general competency was measured in the performance goal. In an objective a number of smaller competencies or sub-competencies were broken down so that each objective measures a small specific competency. There were five types of competencies which require taxonomic analysis. These taxonomies included:

1. Cognitive Competencies which specify knowledge, understanding and awareness.
2. Affective Competencies which relates to values, attitudes, interests, and appreciation.
3. Performance Competencies which require the demonstration of behaviors.
4. Consequence or Product Competencies which require the demonstration of ability to bring about change in others.
5. Exploratory and Expressive Competencies which provide experiences that may have value for prospective teachers even though specific expected outcomes from experiences may not be identified in advance.¹²⁶

In a module there were two types of evaluation used to measure specific student outcomes: formative evaluation and summative evaluation. Formative evaluation measured the student's mastery of

specific objectives stated in the unit while summative evaluation was the measurement of students on a complete course. Both of these evaluations were criterion-referenced which, unlike its counterpart norm-referenced testing, contained prescribed behavioral objectives. Norm-referenced evaluation measured one student against another or the entire class. Criterion-referenced tests measured the student's competence according to a stated criteria.

Although Hall and Jones listed five taxonomic analysis categories the three most popular taxonomies included the cognitive domain, the affective domain, and the psychomotor domain.

VIIC. Background to the Taxonomy of Educational Objectives

From 1949 until 1953, a group of educationists and members of the American Psychological Association headed by Benjamin S. Bloom set out to classify educational objectives according to taxonomies. At the conference these educationists and psychologists agreed that there were three domains for classifying objectives -- the cognitive domain, the affective domain, and the psychomotor domain. In 1954 handbook for the cognitive domain was published. According to Bloom and others who attended the conference, the cognitive domain was divided into six levels. Each higher level of learning assumed that the lower levels were already known. Application, for example, which is the first stage, included knowledge, found in the first stage, and comprehension which was located in the second stage. Table 1 provides a detailed breakdown of the six levels of cognitive

development.¹²⁸

In 1964 Krathwohl, Bloom, and Masia edited the taxonomy of educational objectives for the affective domain. The affective domain listed five categories of educational objectives: receiving, responding, valuing, organization, and characterization by a value or value complex.¹²⁹

Table III describes the taxonomy of the affective domain in detail. Like the cognitive domain, the affective domain also assumed that the lower levels of learning were understood before the higher levels of learning.

The final domain, the psychomotor domain, has not been developed as extensively as the other two domains, however, Elizabeth Simpson produced a paper outlining a taxonomy for the psychomotor domain which has been generally accepted in the literature.¹³⁰

Table V summarizes the categories for the psychomotor domain developed from her study.

TABLE 1. Major Categories in the Cognitive Domain of the Taxonomy of Educational Objectives

Descriptions of the Major Categories in the Cognitive Domain	
1.	<u>Knowledge.</u> Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain.
2.	<u>Comprehension.</u> Comprehension is defined as the ability to grasp the meaning of material. This may be shown by translating material from one form to another (words to numbers), by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). These learning outcomes go one step beyond the simple remembering of material, and represent the lowest level of understanding.
3.	<u>Application.</u> Application refers to the ability to use learned material in new and concrete situations. This may include the application of such things as rules, methods, concepts, principles, laws, and theories. Learning outcomes in this area require a higher level of understanding than those under comprehension.
4.	<u>Analysis.</u> Analysis refers to the ability to break down material into its component parts so that its organizational structure may be understood. This may include the identification of the parts, analysis of the relationships between parts, and recognition of the organizational principles involved. Learning outcomes here represent a higher standing of both the content and the structural form of the material.
5.	<u>Synthesis.</u> Synthesis refers to the ability to put parts together to form a new whole. This may involve the production of a unique communication (theme or speech), a plan of operations (research proposal), or a set of abstract relations (scheme for classifying information). Learning outcomes in this area stress creative behaviors, with major emphasis on the formation of new patterns or structures.
6.	<u>Evaluation.</u> Evaluation is concerned with the ability to judge the value of material (statement, novel, poem, research report) for a given purpose. The judgments are to be based on definite criteria. These may be internal criteria (organization) or external criteria (relevance to the purpose) and the student may determine the criteria or be given them. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all of the other categories, plus conscious value judgments based on clearly defined criteria.

TABLE II. Examples of General Instructional Objectives and Behavioral Terms
for the Cognitive Domain of the Taxonomy

CATEGORIES	ILLUSTRATIVE GENERAL INSTRUCTIONAL OBJECTIVES	ILLUSTRATIVE BEHAVIORAL TERMS FOR STATING SPECIFIC OUTCOMES
Knowledge	Knows common terms. Knows specific facts. Knows methods and procedures. Knows basic concepts. Knows principles.	Defines, describes, identifies, labels, lists, matches, names, outlines, reproduces, selects, states.
Comprehension	Understands facts and principles. Interprets verbal material. Interprets charts and graphs. Translates verbal material to mathematical formulas. Estimates future consequences implied in data. Justifies methods and procedures.	Converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, paraphrases, predicts, rewrites, summarizes.
Application	Applies concepts and principles to new situations. Applies laws and theories to practical situations. Solves mathematical problems. Constructs charts and graphs. Demonstrates correct usage of a method or procedure.	Changes, computes, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.
Analysis	Recognizes unstated assumptions. Recognizes logical fallacies in reasoning. Distinguishes between facts and inferences. Evaluates the relevancy of data. Analyzes the organizational structure of a work (art, music, writing).	Breaks down, diagrams, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, points out, relates, selects, separates, subdivides.
Synthesis	Writes a well organized theme. Gives a well organized speech. Writes a creative short story (or poem, or music). Proposes a plan for an experiment. Integrates learning from different areas into a plan for solving a problem. Formulates a new scheme for classifying objects (or events, or ideas).	Categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.
Evaluation	Judges the logical consistency of written material. Judges the adequacy with which conclusions are supported by data. Judges the value of a work (art, music, writing) by use of internal criteria. Judges the value of a work (art, music, writing) by use of external standards of excellence.	Appraises, compares, concludes, contrasts, criticizes, describes, discriminates, explains, justifies, interprets, relates, summarizes, supports.

TABLE III. Major Categories in the Affective Domain of the Taxonomy of Educational Objectives 130

Descriptions of the Major Categories in the Affective Domain	
1.	<u>Receiving.</u> Receiving refers to the student's willingness to attend to particular phenomena or stimuli (classroom activities, textbook, music, etc.). From a teaching standpoint, it is concerned with getting, holding, and directing the student's attention. Learning outcomes in this area range from the simple awareness that a thing exists to selective attention on the part of the learner. Receiving represents the lowest level of learning outcomes in the affective domain.
2.	<u>Responding.</u> Responding refers to active participation on the part of the student. At this level he not only attends to a particular phenomenon but also reacts to it in some way. Learning outcomes in this area may emphasize acquiescence in responding (reads assigned material), willingness to respond (voluntarily reads beyond assignment), or satisfaction in responding (reads for pleasure or enjoyment). The higher levels of this category include those instructional objectives that are commonly classified under "interests"; that is, those that stress the seeking out and enjoyment of particular activities.
3.	<u>Valuing.</u> Valuing is concerned with the worth or value a student attaches to a particular object, phenomenon, or behavior. This ranges in degree from the more simple acceptance of a value (desires to improve group skills) to the more complex level of commitment (assumes responsibility for the effective functioning of the group). Valuing is based on the internalization of a set of specified values, but clues to these are concerned with behavior that is consistent and stable enough to make the value clearly identifiable. Instructional objectives that are commonly classified under "attitudes" and "appreciation" would fall into this category.
4.	<u>Organization.</u> Organization is concerned with bringing together different values, resolving conflicts between them, and beginning the building of an internally consistent value system. Thus the emphasis is on comparing, relating, and synthesizing values. Learning outcomes may be concerned with the conceptualization of a value (recognizes the responsibility of each individual for improving human relations) or with the organization of a value system (develops a vocational plan that satisfies his need for both economic security and social service). Instructional objectives relating to the development of a philosophy of life would fall into this category.
5.	<u>Characterization by a Value or Value Complex.</u> At this level of the affective domain, the individual has a value system that has controlled his behavior for a sufficiently long time for him to have developed a characteristic "life style." Thus the behavior is pervasive, consistent, and predictable. Learning outcomes at this level cover a broad range of activities, but the major emphasis is on the fact that the behavior is typical or characteristic of the student. Instructional objectives that are concerned with the student's general patterns of adjustment (personal, social, emotional) would be appropriate here.

TABLE IV. Examples of General Instructional Objectives and Behavioral Terms for the Affective Domain of the Taxonomy¹³¹

Categories	Illustrative General Instructional Objectives	Illustrative Behavioral Terms for Stating Specific Learning Outcomes
Receiving	Listens attentively. Shows awareness of the importance of learning. Shows sensitivity of human needs and social problems. Accepts differences of race and culture. Attends closely to the classroom activities.	Asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits erect, replies, uses.
Responding	Completes assigned homework. Obeys school rules. Participates in class discussion. Completes laboratory work. Volunteers for special tasks. Shows interest in subject. Enjoys helping others.	Answers, assists, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.
Valuing	Demonstrates belief in the democratic process. Appreciates good literature (art or music). Appreciates the role of science (or other subjects) in everyday life. Shows concern for welfare of others. Demonstrates problem-solving attitude. Demonstrates commitment or social improvement.	Completes, describes, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works.
Organization	Recognizes the need for balance between freedom and responsibility in a democracy. Recognizes the role of systematic planning in solving problems. Accepts responsibility for his own behavior. Understands and accepts his own strengths and limitations. Formulates a life plan in harmony with his abilities, interests, and beliefs.	Adheres, alters, arranges, combines, compares, completes, defends, explains, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes.
Characterization by a Value or Value Complex	Displays safety consciousness. Demonstrates self-reliance in working independently. Practices cooperation in group activities. Uses objective approach in problem solving. Demonstrates industry, punctuality and self-discipline. Maintains good health habits.	Acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, uses, verifies.

TABLE V. Examples of General Instructional Objectives and Behavioral Terms for the Psychomotor Domain of the Taxonomy 132

Taxonomy Categories	Illustrative General Instructional Objectives	Illustrative Behavioral Terms for Stating Specific Learning Outcomes
(Development of Categories in this domain is still underway)	Writes smoothly and legibly. Draws accurate reproduction of a picture (or map, biology specimen, etc.) Sets up laboratory equipment quickly and correctly. Types with speed and accuracy. Operates a sewing machine skillfully. Operates a power saw safely and skillfully. Performs skillfully on the violin. Performs a dance step correctly. Demonstrates correct form in swimming. Demonstrates skill in driving an automobile. Repairs an electric motor quickly and effectively. Creates new ways of performing (creative dance, etc.)	Assembles, builds, calibrates, changes, cleans, composes, connects, constructs, corrects, creates, designs, dismantles, drills, fastens, fixes, follows, grinds, grips, hammers, hears, hooks, identifies, locates, makes, manipulates, mends, mixes, nails, paints, sands, saws, sharpens, sets, sews, sketches, starts, stirs, uses, weighs, wraps.

VIIIC1. Other Support for Sequencing Learning

Gagné's learning hierarchy supported the idea that learning was developed in stages.¹³¹ As a result, Gagné believed that content should be organized from the simple to the complex, so that students moved up the learning hierarchy. Illustration A gives an example of Gagné's learning hierarchy.

Gagné's belief in a learning hierarchy, and the contributions of the research carried out by Bloom, Krathwohl, and Simpson reinforced the principles of competency-based education and individualized instruction in the development of curriculum. This reinforcement has resulted, to a great extent, in the acceptance of the behavioral approach in business education. Hennington expanded on the benefits of behavioral objectives for improving business education curriculum when she stated:

To those business educators generally concerned with developing a useful behavioral objectives approach, assistance is available from professional literature, business education courses, seminars in-service workshops, consultants and behavioral objectives banks. If business educators sincerely desire to focus more precisely on meaningful subject areas, select more appropriate teaching strategies, and develop more valid evaluation procedures, the behavioral approach to formulating written objectives enable them to improve their effectiveness in the classroom.¹³²

This section of the review of literature implied that if an accounting module based on the principles of competency-based education and individualized instruction was to be developed, then it would contain some of the components such as behavioral objectives, criterion-referenced tests, and specialized learning tasks, according to a sequential learning pattern. Given this assumption, the module

developed in this study has used the literature cited in this section of the chapter as a conceptual basis for its sequential and hierarchical learning pattern.

Illustration A
A Curriculum Hierarchy on the Addition of Integers.

TASK 1

Stating, using specific numbers, the series of steps necessary to formulate a definition of addition of integers, using whatever properties are needed.

Supplying the steps and identifying the properties in asserting the truth of statements involved

Supplying other names for positive integers in statements of equality

Stating and using the definition of addition of an integer and its additive inverse

Using the whole no. 0 as the additive identity

(Associative Prop.)
Supplying other numerals for whole numbers

Performing addition and subtraction of whole numbers

TASK 2

Adding Integers

Stating and using the definition of the sum of two integers

Identifying and using the properties that must be assumed in asserting the truth of statements of equality.

Stating and using the definition of addition of two positive integers.

Supplying other numerals for whole numbers using the commutative prop.

Identifying numerals for whole numbers, closure property.

Using parenthesis to group names for the same whole number

Summary of the Review of Related Literature

The purpose of the review of related literature was to provide an overview of competency-based education and individualized instruction, and to cite literature supporting the conceptual framework of the accounting module developed in this study.

The overview of literature on competency-based education and individualized instruction indicated that:

1. There were many definitions for competency-based education and individualized instruction. Some of the definitions appeared similar for both terms because basic ideas such as student centeredness, the use of behavioral objectives, flexible time periods, the element of mastery and criterion-referenced testing as a form of student evaluation or the measurement of student success, were common to both competency-based education and individualized instruction. These common traits have resulted in a confusion between the two terms which is still prevalent in the literature today.
2. There was an historical tradition for a systematic individualized form of instruction. Some of the more popular individualized instructional systems included the Burk Plan in 1913 and the Dalton and Winnetka Plans of the 1920's. The success of these individualized systems, or plans, led to the development of more elaborate individualized systems.
3. Competency-based education and individualized instruction was supported in the psychological literature dealing with the

cognitive process. This cognitive process was concerned with learning structure. Learning was said to occur because of a change in student behavior other than physical growth. Specialization of instruction was needed to meet the individual learning needs of students.

4. Mastery learning has been successful in meeting individual learning needs and it is probably the best example of putting the principles of both competency-based education and individualized instruction into practice. Mastery learning, developed by Benjamin Bloom and his associates at the University of Chicago, used Professor James Carroll's model for school learning as its foundation. The success of the mastery model has led to the belief that mastery learning has potential in the development of business education curriculum.

The literature supporting the conceptual framework for the module developed in this study showed that:

1. Many instructional designs using competency-based education and individualized instructional principles use the systems approach. The systems approach was extremely popular in three major instructional systems: a) PLAN (Program for Learning in Accordance with Needs); b) PEP (Primary Elementary Project); and c) IPI (Individualized Prescribed Instruction).
2. Individualized instruction in accounting has been generally limited to the comparison of a conventional means of instruction to a programmed learning situation. Some of the research designs

relied solely on authorized textbooks while others, such as Harbarger, used an original textbook. There were also self paced units and laboratory settings in the research designs. Individualized instruction has had moderate to good success in accounting.

3. An efficient way to individualize instruction was through modular instruction. Modular instruction allowed the teacher to assume a dual role -- teaching and managing. This teaching-managing role for the instructor had three advantages over the traditional classroom setting: a) the teacher was seen by students as a cooperator or a facilitator of information; b) the teacher assisted the student only when he/she needed it; and c) because there is no time limit restricting student progress the instructor was also not limited by a time factor.
4. The components of a module included a prospectus, a statement of objectives, preassessment, alternative enabling activities, and postassessment. These components reached the student's competencies necessary for student learning. There has been a great deal of support for arranging the structure in such a way that a student learns according to a sequential learning hierarchical pattern. As a result, modules were structured according to this learning pattern.

The review of literature indicated that there is generally no study which used competency-based education and individualized instruction principles for the development of a high school accounting

module. Furthermore, the review of literature showed that if such a module were to be developed there was an abundance of supportive data. These observations reinforced the purpose of the study.

CHAPTER III

The researcher's interest in this study grew from a concern with individual learning needs of students. The researcher had the opportunity to plan and instruct business education classes which had students at various learning levels and required diverse curriculum materials to accomodate the business education curriculum. Through the graduate courses taught by Dr. G. H. J. Porozny, "Topics in Curriculum I" (81.706) and II (81.707)" in the Department of Mathematics and Natural Sciences, Faculty of Education, at the University of Manitoba, the researcher discovered the areas of competency-based education and individualized instruction. The technique for the preparation of this study was assimilated with the help of fellow students in Dr. Porozny's graduate course, "Seminar in Business Education (81.514)" which was also offered in the Department of Mathematics and Natural Sciences, Faculty of Education, at the University of Manitoba. The conceptual framework for the module was largely a result of the discussions with the researcher and fellow graduate students in Dr. J. A. Riffel's course, "Principles of Curriculum Organization and Implementation (116.701)" in the Department of Educational Administration and Foundations, Faculty of Education, at the University of Manitoba.

Methodology of the Study and Conceptual
Framework of the Module

I. Methodology

The review of literature indicated that there was a considerable lack of research on competency-based education and/or individualized instruction in high school accounting. This finding indicated that information was needed about accessible curriculum materials as it was the intention of the researcher to develop a competency-based and/or individualized instructional module for a beginning high school accounting course. Therefore, the first step in the methodology involved the acquisition of available competency-based and/or individualized instructional accounting curriculum materials by contacting a variety of individuals and their representative institutions.

Information Gathering

To find out what curriculum materials were available on competency-based education and/or individualized instruction in high school accounting several sources were approached. One major source was Professor Henry Kaluza at the University of Western Ontario. Professor Kaluza was considered a vital source for two reasons: (1) his textbook, Accounting: A Systems Approach, is a popular authorized textbook used in Accounting 202, which is the introductory high school accounting course in the province of Manitoba; and (2) he was extremely approachable and willing to help all of his students, including the researcher which was especially evident during the researcher's Bachelor of Education year at the University of Western Ontario.

One of Professor Kaluza's colleagues, Dr. David Weaver, the Director of Research at McGraw-Hill Book Company in New York, was also contacted to see what information he could provide on competency-based education and/or individualized instruction in high school accounting. Dr. Weaver sent a copy of his textbook, Accounting 10-12, along with two individualized study guides which proved to be of value for this study.

Another significant source included Dr. Marianne D'Onofrio, Assistant Professor at the University of Wisconsin in Madison. Dr. D'Onofrio sent the researcher a publication from V-TECS and also informed the researcher about the existence of the National Curriculum Network in the United States Office of Education.

Although there were other individuals who provided information about existing competency-based and/or individualized instructional accounting curriculum materials, and other sources were considered in this study, Professor Kaluza, Dr. Weaver and Dr. D'Onofrio helped the researcher acquire relevant curriculum material for conceptual design of the module. A record of the educational institutions which sent additional curriculum materials can be located in Appendix C.

Panel of Experts

A panel of experts were invited, by letter, to take part in the study (Appendix D). It was the intention of the researcher to develop a module for a beginning high school accounting course using the principles of competency-based education and individualized instruction and have it evaluated by a panel of experts. This was agreed upon by the researcher and the committee members at the proposal meeting.

The evaluation of the module by the panel of experts formed a solid basis for the development of a reliable module which could be used in a high school accounting course.

The researcher and his advisor selected the panel members. The criteria for the selection of the panel was to acquire a cross-section of experts in education such as university professors, high school accounting textbook authors, educational administrators, research workers and high school accounting teachers. Ten out of twelve selected experts agreed to take part in the study (Appendix E). The ten individuals who agreed to become the panel of experts appeared to be a fair representation of the criteria. The panel of experts were kept informed about the development of the module throughout the entire study (Appendix G).

Once the module, pre-test, post-test, and evaluation sheets had been completed, the curriculum package and a covering letter was mailed to the panel of experts. The covering letter stated the content of each curriculum package (Appendix F) and identified three evaluation sections. In the curriculum package, there was an evaluation section for the module, the pre-test, and the post-test. After each expert evaluated the module, the pre-test, and the post-test, the curriculum package was returned to the researcher so that a revised module could be developed.

II. Conceptual Framework of the Module

Content, Scope and Sequence

The module which was developed for this study used the equation approach as its conceptual framework. Consequently, the content, scope and sequence was organized into the following topics.

<u>Topics</u>	<u>Content, Scope and Sequence</u>
1	An Introduction of the Accounting Equation (Assets = Liabilities + Owner's Equity)
2	The Balance Sheet
3	Analyzing Changes in the Accounting Equation (Balance Sheet Transactions)
4	The Expanded Equation (Owner's Equity is defined as Capital and Net Income, or Capital, Revenue, and Expenses. Hence the new equation would be: Assets = Liabilities + Capital + Net Income, <u>or</u> Assets = Liabilities + Capital + Revenue - Expenses).
5	The Income Statement
6	The Related Income Statement and Balance Sheet

Although the equation approach is used to teach the entire accounting cycle, the module developed in this study was limited to the first five stages of the equation approach in the teaching of the accounting cycle. Table VI illustrates all of the steps in the equation approach, and Table VII shows the full accounting cycle.

Collecting Curriculum Material for the Module

All of the grade 11 textbooks and the accompanying learning guides were consulted to see what content could be used from these sources in the development of the module. Sources from other Canadian provinces and the United States were scrutinized to determine what information could be used in the module. After considerable deliberation it

TABLE VI: EQUATION APPROACH TO THE TEACHING OF THE ACCOUNTING CYCLE

1. Introducing the Accounting Equation
2. Balance Sheet
3. Analyzing Balance Sheet Transactions with the Accounting Equation
4. Expanding the Equation to Introduce the Concepts of Revenue, Expense, and Net Income
5. Income Statement
6. The Need for an Account
7. The Need for a Journal and Journalizing
8. Posting from the Journal to the Ledger
9. The Worksheet
10. Trial Balance
11. Financial Statements
12. Adjusting Entries
13. Closing Entries
14. Post-Closing Trial Balance

TABLE VII: THE ACCOUNTING CYCLE

1. Journalizing Entries
2. Posting to a Ledger
3. Preparing a Trial Balance and Completing a Worksheet
4. Preparing Financial Statements
5. Closing, Balancing, and Ruling
6. Post-Closing Trial Balance

Source: Lewis D. Boynton, Methods of Teaching Bookkeeping-Accounting
(Ohio: Southwestern Publishing Co., 1970), p. 101.

was decided to use the materials which best conformed to the conceptual framework of the module. As a result, Kaluza's text, Accounting: The Systems Approach formed the basis of the module, although some materials were adapted from Weaver's Individualized Learning Guides. Also, the copyright stipulations made it more accessible to use textbook and learning guide curriculum material from two authors rather than developing a module from a variety of textbooks.

Features of the Module

Pages 1, 2, and 3 of the original module which was sent out to the panel of experts for evaluation included the following features:

1. An introduction to the student outlining the procedures to be followed in the module;
2. The general objectives and competencies;
3. Other salient features of the module such as the use of performance objectives, a description of the learning tasks which are to be performed by the student, the method of student evaluation, and the use of S. I. Metric Units; and
4. All of the work done by the student was completed in the module. Therefore, there was no need for outside texts and working papers.

Arrangement of Student Learning Activities

The student learning activities were ranged according to a learning hierarchy. One performance objective was written for each learning task and corresponded to a specific level on the cognitive taxonomy. The learning hierarchy in illustration B shows how the performance objectives relate to the cognitive taxonomies.

Illustration B: Charting a Learning Hierarchy for the Accounting
Equation Module An Analysis of the Relationship Between Performance
Objectives and Cognitive Competencies

Cognitive Competencies

Objectives

Evaluation

24

Synthesis

22 23

Analysis

19 20 21

Application

14 15 16 17 18

Comprehension

7 8 9 10 11 12 13

Knowledge

1 2 3 4 5 6

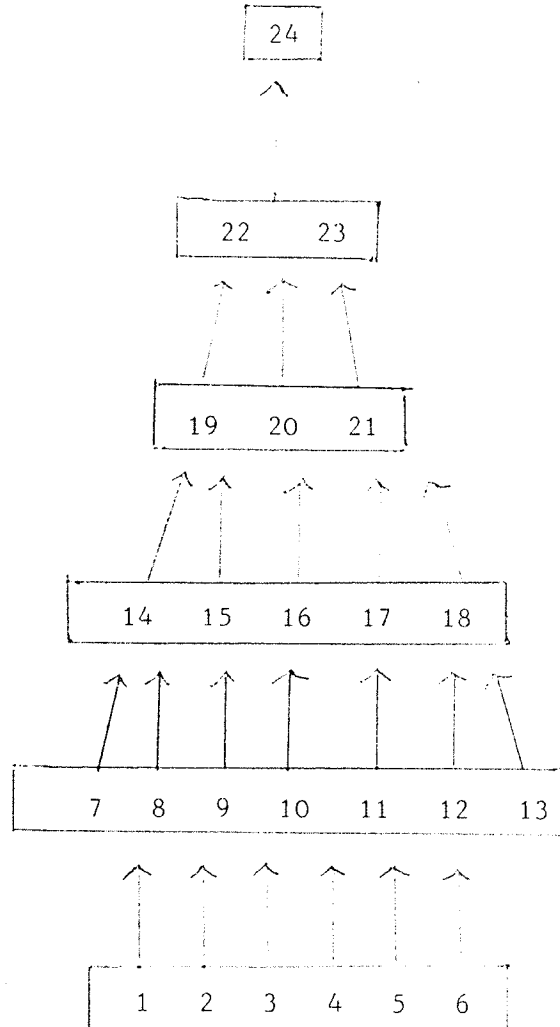


Illustration B (continued)

Listing of the Performance Objectives in the Construction of the
Learning Hierarchy

1. After reading the case of Far Out Joey Spacely the student will be able to: (a) identify in writing a minimum of three economic resources needed by Far Out Joey Spacely to begin his concert sales business; (b) define the collective term, economic resources, from the list of things needed to begin a business; and (c) identify, in writing, a minimum of two sources where Far Out Joey can go to get the economic resources required to begin his concert sales business.
2. Given the basic equation, economic resources = claims of creditors + claims of the owner, the student will give amounts into the correct equation elements of Far Out Joey Spacely's concert sales business.
3. Given a list of items comprising the elements -- economic resources, claims of creditors, and claims of the owner -- the student will write in amounts to show that the basic equation is in balance.
4. Given the accounting equation, $A = L + OE$ the student will solve for the unknown if he knows two of the three elements of the equation.
5. Given a task analysis in the form of a review exercise the student will: (a) write the appropriate term or terms in the blanks; (b) identify cash items; (c) classify items as assets, liabilities and owner's equity and determine which side of the equation the asset, liability, or owner's equity element will be on.
6. Given the balance sheet for the Tortoise and Hare Athletic Supply Store, the student will fill in the blanks concerning questions about the organization of the balance sheet.
7. Given a list of assets and liabilities the student will determine the capital for Quick Foot Francis, and prepare a balance sheet as at December 31, 1979.
8. Given a list of assets and liabilities the student will determine the capital for Marvin Murray and prepare a balance sheet for Murray's Mags and Automobile Supplies as at June 30, 1979.

Illustration B (continued)

9. Given a procedure for analyzing changes in the accounting equation the student will: (a) summarize transactions A to G for Cool Cats' Concert Centre from Table II and evaluate his or her performance by comparing his or her solution with the description and analysis of the transactions previously explained; and (b) Given column paper the student will prepare a balance sheet for Cool Cats' Concert Centre as of May 31, 1980.
10. Given the initial balances for Cash, Accounts Receivable, Equipment, Bank Loan Payable, Accounts Payable, Mary Best - Capital, and an analysis of transactions 1 and 2 the student will complete transactions 3, 4, 5, 6, and 7, and prepare a balance sheet for Office Services as at May 31, 1980.
11. Given four transactions the student will fill in the blanks with the correct amount for the appropriate element(s) in the accounting equation.
12. Given 10 transactions and the appropriate forms the student will: (a) analyze and record the impact of each transaction on the accounting equation for a business enterprise; (b) after recording the changes brought about by the financial transaction, total the equation to prove its equality; and (c) prepare a balance sheet for Radio Station CHJK as at November 30, 1979.
13. Given a procedure for analyzing revenue and expense transactions the student will: (a) summarize transactions H to K for Cool Cats' Concert Centre from Table IV and evaluate his or her performance by comparing his or her solution with the description and analysis of the transaction explained earlier in the module; (b) match revenues with expenses to determine if Cool Cats' Concert Centre yielded a net income or suffered a net loss.
14. Given transactions 9, 10, and 11 for Office Services and an explanation of the analysis for transaction 8, the student will complete transactions 9, 10, and 11 and determine if Mary Best's business yielded a net income or suffered a net loss.
15. Given an exercise measuring vocabulary comprehension the student will identify terms by filling in specified blanks.
16. Given 15 transactions and a form which has been set up for an accounting equation the student will indicate what happens to the accounting equation as a result of each transaction and rearrange the final equation to illustrate the matching principle.

Illustration B (continued)

17. Given an exercise with incorrect words the student will circle the incorrect word and write his solution in the answer column.
18. Given a blank income statement form and 12 steps describing how to prepare an income statement the student will prepare an income statement for Cool Cats' Concert Centre for the month ended June 30, 1980.
19. Given a list of revenue and expenses the student will prepare an income statement for Suzuki Auto Repair for the month ended July 31, 1979.
20. Given a list of revenue and expenses the student will prepare an income statement for Paul Graham, M. D. for the month of October 1979.
21. Given a list of revenue and expenses the student will prepare an income statement for Circle Theatre for the year ended December 31, 1979.
22. Given the initial balances for Cash, Accounts Receivable, Furniture, Accounts Payable, Carl Case Capital, Sales and Expenses for the month ended November 30, 1979, the student will: (i) set up an expanded accounting equation to classify the financial data for the business; (ii) prepare an income statement for the accounting period; and (iii) prepare a related balance sheet for the end of the accounting period.
23. Given the initial balances for Cash, Accounts Receivable, Office Equipment, Bank Loan, Accounts Payable, A. MacPherson Capital, Sales, plus a breakdown of expense items and creditors for the Fredericton Travel Bureau, the student will: (i) set up an expanded accounting equation to classify the financial data for this business; (ii) prepare an income statement for the accounting period; and (iii) prepare a related balance sheet for the end of the accounting period.
24. Given the case of the Economy Car Rental Company the student will determine whether or not Fred Catch, the owner, needs a loan to continue daily business transactions.

Student Evaluation

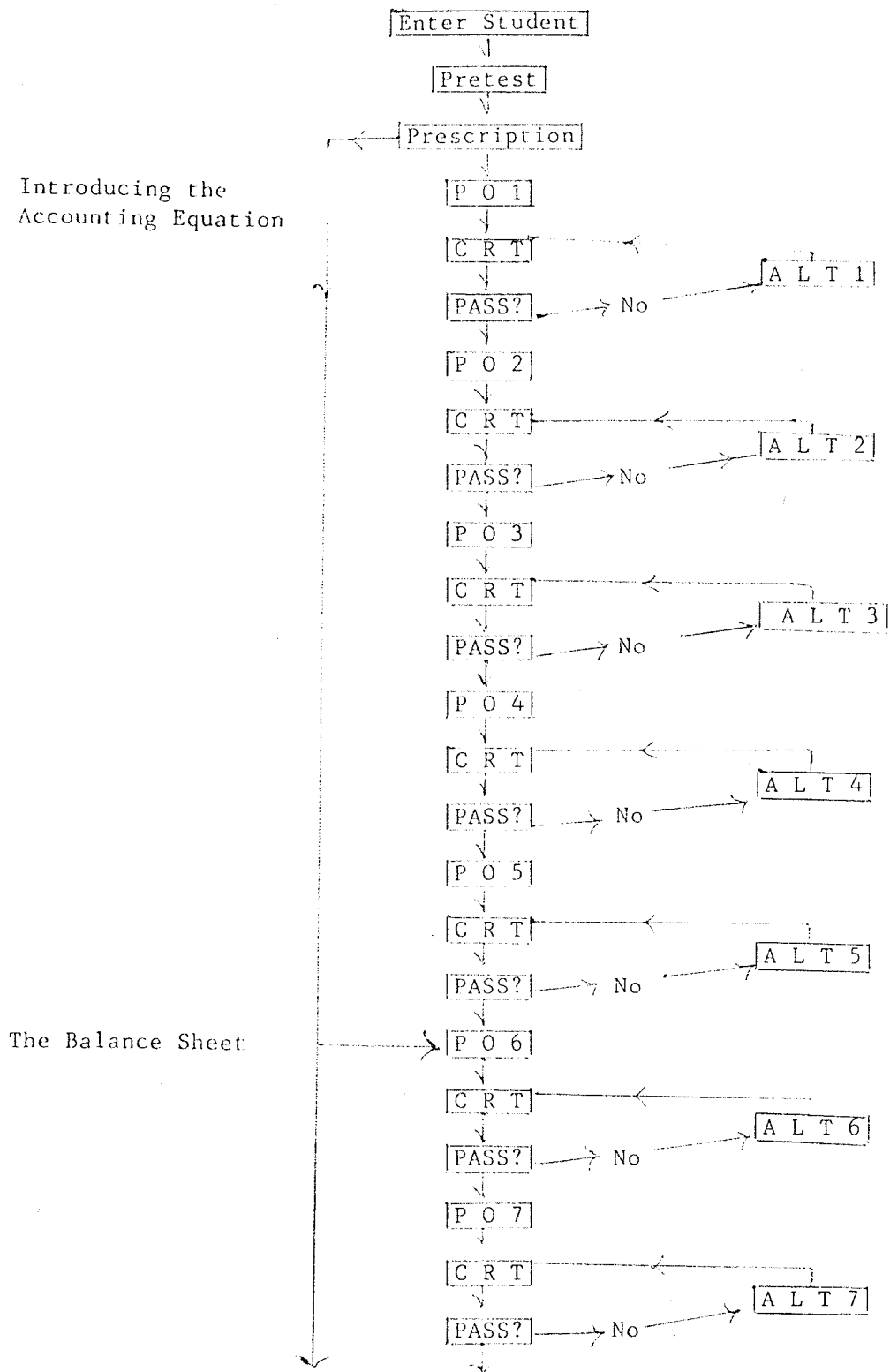
The evaluation used in this module was criterion-referenced.

The following components made up the student evaluation.

- a pre-test determined the student's placement at the beginning of the module.
- a post-test measured what the student learned.
- each exercise had an assignment for the student to complete. The assignments were either self-corrective, or the student had the instructor mark the assignment from the solution manual.

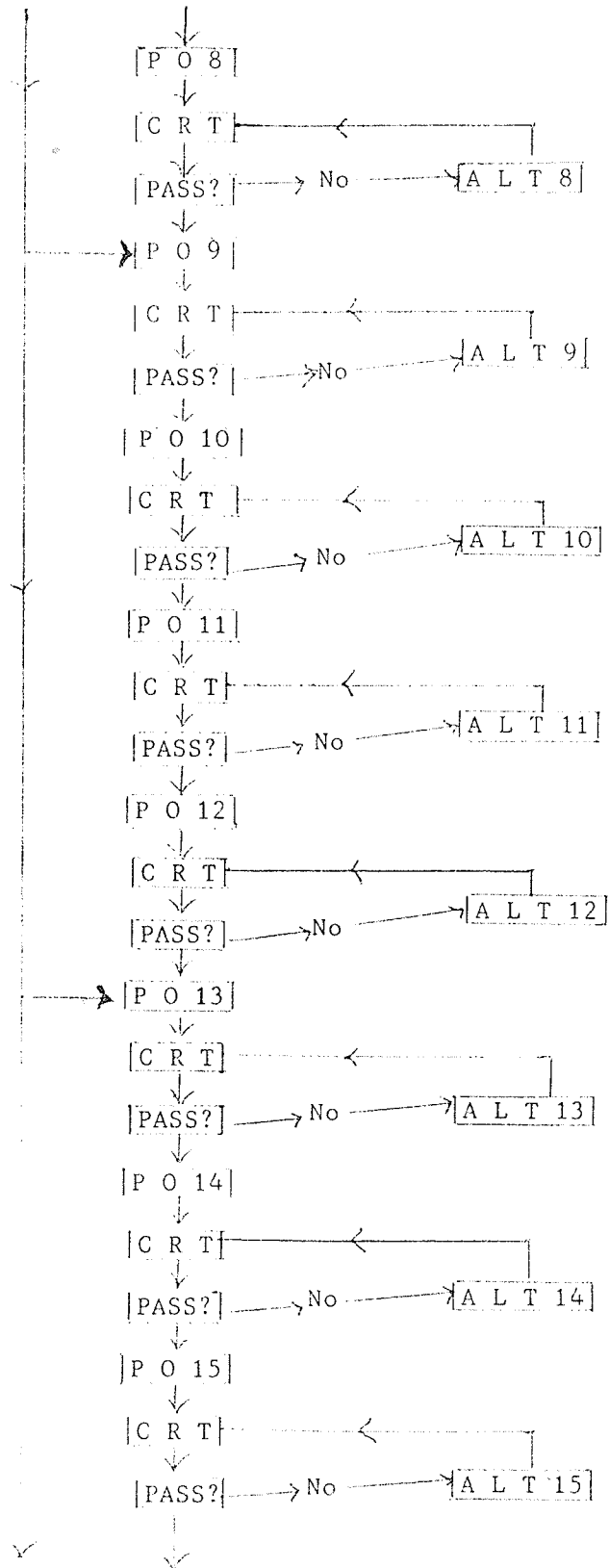
The pre-test and student learning activities made up the formative evaluation while the post-test formed the summative evaluation. Unless the learning task stated otherwise a 90 per cent mastery level was set for student advancement. If the student did not meet the criteria he or she was given an alternative learning activity. The flow chart in Illustration C shows how the student progressed through the accounting module.

Illustration C: FLOW CHART OF THE ACCOUNTING MODULE



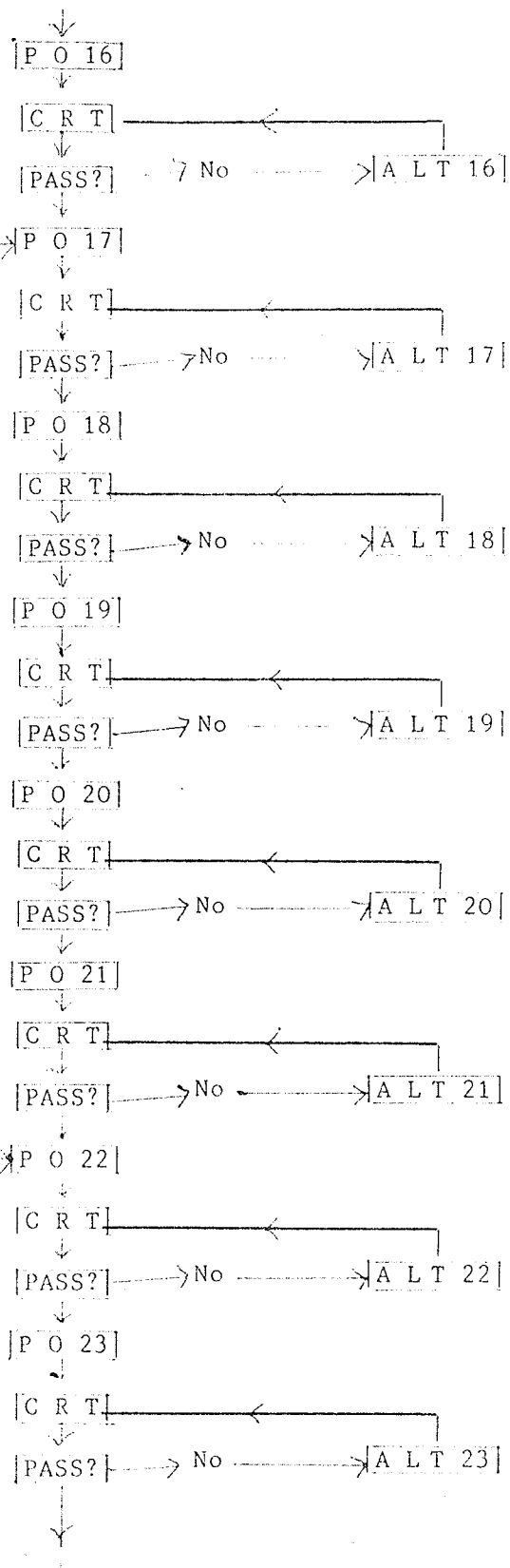
Analizing Changes
in the Accounting
Equation

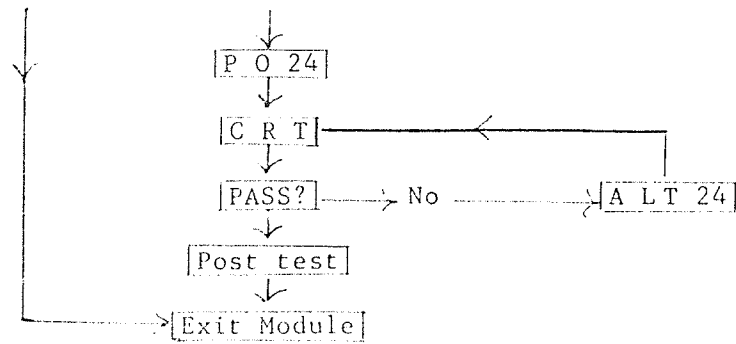
The Expanded Equation



The Income Statement

The Related Income
Statement and
Balance Sheet





KEY: P O - Performance Objective

C R T - Criterion Referenced
Test (could be one of
many tests related to
the performance objective)

A L T - Alternative Learning Task

CHAPTER IV

FINDINGS

Introduction

The purpose of this chapter was to present the findings from the nine responding experts who made up the panel of experts for this study. From these findings a revised module was developed to reflect the common consensus of opinion from the panel of experts. Each expert evaluated the pre-test and the solutions to the pre-test, the post-test and the solutions to the post-test, and the accounting module and the accompanying solution manual for the module. Evaluation sheets accompanied each component of the task performed by the panel of experts.

Questions Concerning the Pre-Test and Post-Test Evaluation

A check list was used to evaluate the pre-test and the solutions to the pre-test, and the post-test and the solutions to the post-test. The check list was based on items found in Norman E. Gronlund's book, Preparing Criterion Referenced Tests for Classroom Instruction (New York: MacMillan Publishing Co., 1973).

The check list included the following questions:

1. Are the types of items appropriate for the learning outcomes to be measured?

2. Do the test items measure an adequate sample of student performance for each type of interpretation to be made?
3. Do the test items present clear and definite tasks to be performed?
4. Are the test items of appropriate difficulty for the learning outcomes to be measured?
5. Are the test items free from technical defects?
6. Are the test items numbered in consecutive order?
7. Are specific, clear directions provided for each section of the test, and for the test as a whole?

From these seven questions the experts answered "yes" or "no" to each question. The experts were also encouraged to respond in greater detail to each question.

The second section of the evaluation sheet was the overall assessment section. In this section each expert evaluated the strengths and weaknesses of the test, suggested any other comments which he or she considered noteworthy, and provided a priority listing of recommendations.

Questions Concerning the Module Evaluation

The module evaluation had two sections. The first section, which was derived from Norman E. Gronlund's book, Individualizing Classroom Instruction (New York: MacMillan Publishing Co., 1974), required each expert to answer "yes" or "no" to questions concerning the objectives, the pre- and post- tests, and the learning tasks. Each expert was encouraged to elaborate on his or her responses to each question. The module evaluation contained the following questions:

Objectives

1. Is each performance objective stated in measurable (observable) terms?
2. Is the performance objective limited enough to be attained?
3. Is the performance objective relevant to a more general objective?

Pre-Test and Post Test

4. Are the directions stated clearly?
5. Do the items provide direct measures of all the tasks described in the performance objectives?
6. Has a reasonable standard of mastery been set?

Learning Task

7. Are the directions for procedures clearly stated?
8. Do the materials and activities contribute to the achievement of the performance objective?
9. Is there a variety of types and levels of learning materials?

The second section of the module evaluation was derived from an article written by Maurice J. Eash, entitled, "Developing an Instrument for Assessing Instructional Materials," Curriculum Theory Network Monograph Supplement, Curriculum Evaluation: Potentiality and Reality, No. 8-9 (1971-1972). In this section a summary rating used a scale with a range from 1 to 10 measuring the objectives, organization of materials (scope and sequence), methodology, evaluation, and overall assessment. Each expert was encouraged to elaborate on his or her suggestions which he or she felt necessary for improving the module.

Results

Pre-Test Evaluation

Table VII presents the distribution of "yes" "no" items by the panel of experts. Seven out of nine experts agreed that the questions constructed in the pre-test measured the appropriate learning outcomes. Eight out of nine experts felt that the test items measured an adequate sample of student performance. Eight out of nine experts confirmed that the test items presented clear and definite tasks to be performed. Eight out of nine experts agreed that the test items were of appropriate difficulty for the measurement of learning outcomes. Six out of nine experts believed that the test items were free from technical defects. All the experts stated that the test items were numbered in consecutive order. Finally, all of the experts reported that the directions on the test were clear and specific.

In addition to the "yes-no" responses some of the experts added:

1. The spiral selection leads from simple questions to more challenging questions.
2. The students should prepare either an income statement or a balance sheet.
3. Some of the test items do not measure an adequate sample of student performance.
4. Some of the test items are at the rote-memory level.
5. The concept of pre-testing is inaccurate for an introductory module in a beginning course because the student is unfamiliar with the course content. As a result, the student could easily be turned off the subject if he or she does poorly on the pre-test.

TABLE VII
DISTRIBUTION OF "YES" "NO" ITEMS BY THE PANEL OF EXPERTS
FOR THE PRE-TEST EVALUATION

Questions	Panel of Experts								
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>
1	Y	Y	Y	Y	Y	Y	N	N	Y
2	Y	Y	Y	Y	Y	Y	N	Y	Y
3	Y	Y	Y	Y	Y	Y	N	Y	Y
4	Y	Y	Y	Y	Y	Y	N	Y	Y
5	Y	Y	Y	Y	Y	N	N	N	Y
6	Y	Y	Y	Y	Y	Y	Y	Y	Y
7	Y	Y	Y	Y	Y	Y	Y	Y	Y

Y = Yes

N = No

6. There is too much emphasis on objective-type questions.
7. There is too much content for a pre-test. A true learner would not be able to answer any of the items and would thoroughly be frustrated by such a long test.

The overall strengths of the pre-test included:

1. Because high scores are invited, students who achieve less than 60% will encounter difficulties.
2. The criteria outlined in terms (questions) 1 to 7 are met.
3. With the exception of question 1, the test items represent what is taught in the module.
4. It is well-organized and includes all the required material.

The overall weaknesses of the pre-test were:

1. There should be at least one question at a difficult level.
2. Key the test items to the performance objectives in the module so that presumptions can be made from the test results.
3. There are negative effects for students if this topic is pre-tested.
4. Use an original test rather than a commercially prepared test.
5. A progress test should not be used as a pre-test.
6. No instruction is provided to the student after the pre-test has been written.

One expert suggested that the test should include some completed transactions with errors. The student would make correcting transactions to rectify the errors. Such exercises, the expert believed, would make the instructor aware of the student's ability at their highest level of the cognitive domain.

Pre-Test Evaluation

Table VIII illustrates the distribution of "yes" "no" items by the panel of experts for the post-test evaluation. Seven out of nine experts agreed that the questions constructed in the post-test measured the appropriate learning outcomes. Eight out of nine experts felt that the test items measured an adequate sample of student performance. Eight out of nine experts reported that the test items presented clear and definite tasks to be performed. Eight out of nine experts agreed that the test items were of appropriate difficulty for measuring learning outcomes. Seven out of nine experts believed that the test items were free from technical defects. All of the experts stated that the test items were numbered in consecutive order. Finally, all of the experts reported that the directions were clear and specific.

In addition to the "yes-no" items, some of the experts added:

1. Students should prepare an income statement and balance sheet on blank forms from given data for a financial period.
2. The post-test is extremely thorough.
3. There are too many recall questions.
4. The test is too long.

The overall strengths of the post-test included:

1. Part X is an excellent choice for the application of accounting principles.
2. The test questions progress according to difficulty.
3. The test is easy to understand and mark.
4. There is a good assortment of objective-type questions

TABLE VIII
DISTRIBUTION OF "YES" "NO" ITEMS BY THE PANEL OF EXPERTS
FOR THE POST-TEST EVALUATION

Questions	Panel of Experts								
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>
1	Y	Y	Y	Y	Y	Y	N	N	Y
2	Y	Y	Y	Y	Y	Y	N	Y	Y
3	Y	Y	Y	Y	Y	Y	N	Y	Y
4	Y	Y	Y	Y	Y	Y	N	Y	Y
5	Y	Y	Y	Y	Y	Y	N	N	Y
6	Y	Y	Y	Y	Y	Y	Y	Y	Y
7	Y	Y	Y	Y	Y	Y	Y	Y	Y

Y = Yes

N = No

5. The test is clear and well-organized.

Some of the weaknesses of the post-test were:

1. There is a lack of at least one question in the actual preparation of financial statements.
2. There is no link between the test items to the performance objectives.
3. Use more challenging questions.
4. Use original questions because these test items are widely circulated. As a result, some students may have previewed them.
5. The post-test is not all inconclusive.
6. Some of the objectives are not tested.

Some of the experts suggested that:

1. The pre-test and post-test should be identical for the purpose of statistical analysis.
2. The test should be divided into two parts. Part 1 would include all the material up to the end of the balance sheet and the equation and part 2 would include the material up to the transaction analysis and expanded equation.

Module Evaluation

Table IX presents the distribution of "yes" "no" items by the panel of experts. Eight out of nine experts agreed that each performance objective was stated in measurable (observable) terms. Eight out of nine experts felt that the performance objectives were limited enough to be attained. Eight out of nine experts agreed that each performance objective related to a more general objective. Seven out of nine experts believed that the directions were stated clearly. Seven out of nine experts reported that the items provided direct measures of all the tasks described in the performance objectives. Eight out of nine experts stated that a

TABLE IX
DISTRIBUTION OF "YES" "NO" ITEMS BY THE PANEL OF EXPERTS
FOR THE MODULE EVALUATION

Questions	Panel of Experts								
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>
1	Y	Y	Y	Y	Y	N	Y	Y	Y
2	Y	Y	Y	Y	Y	Y	Y	N	Y
3	Y	Y	Y	Y	Y	Y	N	Y	Y
4	Y	Y	Y	Y	Y	Y	N	N	Y
5	Y	Y	Y	Y	Y	N	N	Y	Y
6	Y	Y	Y	Y	Y	Y	Y	N	Y
7	Y	Y	Y	Y	Y	Y	Y	N	Y
8	Y	Y	Y	Y	Y	Y	Y	N	N
9	Y	Y	Y	Y	N	Y	N	N	Y

Y = Yes

N = No

reasonable standard of mastery had been set. Eight out of nine experts reported that the directions for procedures were stated clearly. Seven out of nine experts confirmed that the materials and activities contributed to the achievement of each performance objective. Finally, six out of nine experts believed that there was a variety of the types and levels of learning materials.

In addition to the "yes-no" items, some of the experts added:

1. Use an 80% mastery standard in exercises where financial statements are involved.
2. Either add Land to the list of economic resources or delete buildings in the examples of financial statements.
3. Use service firms rather than merchandising firms.
4. The condition is not always stated in each performance objective.
5. Have additional exercises, particularly at the end of the module to enable students to apply all concepts learned in working through the module.
6. Performance objectives are written within the scope of high school students.
7. Include a procedure section showing the student the steps used to solve a particular type of problem.
8. More variety of methods, strategies, and media is needed to change the pace of the modular format.
9. There is good movement from the simple to the complex.
10. Review some of the directions stated in the module.
11. Some paragraphs are too long.
12. Although some of the learning tasks teach students to fill in forms like the balance sheet and income statement they do not deal with the understanding of concepts.

13. The learning tasks are, for the most part, all at the same cognitive level.
14. Marking schemes are not provided in the solution manual.
15. Although the balance sheet and income statements are well constructed, several objectives pertaining to them are not tested.
16. New terms must be explained thoroughly before they are tested.
17. A 90% mastery rate is reasonable only after material has been adequately presented and drilled.
18. More variety in exercises is needed.
19. An introduction is needed before the case.
20. Some instructions are written more for the teacher than the learner as are some objectives.

Table X illustrates the analysis section of the module evaluation by the panel of experts. Using a ten point scale the experts evaluated the objectives, the organization of materials, the methodology, the evaluation component of the module, and scored an overall assessment for the module.

The score for the objectives ranged from a low of 3.5 to a high of 9.0 with a mean of 7.56. The score for the organization of materials ranged from a low of 2.5 to a high of 9.0 with a mean of 7.39. The score for methodology ranged from a low of 2.5 to a high of 9.0 with a mean of 6.67. The score for evaluation ranged from a low of 3.5 to a high of 9.0 with a mean of 7.22. Finally, the score for the overall assessment section ranged from a low of 2.5 to a high of 9.5 with a mean of 6.44.

TABLE X
ANALYSIS OF SECTION TWO OF THE MODULE EVALUATION SHEET
DISTRIBUTION OF INDIVIDUAL AND MEAN SCORES
BY THE PANEL OF EXPERTS

Panel of Experts										
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>X</u>
Objectives	9.0	8.0	9.0	8.5	7.0	8.0	7.0	3.5	8.0	7.56
Organization of Materials	9.0	9.0	9.0	9.0	8.0	6.0	6.0	2.5	8.0	7.39
Methodology	9.0	8.0	9.0	5.5	5.0	6.0	6.0	2.5	9.0	6.67
Evaluation	9.0	8.0	9.0	6.5	6.0	7.0	7.0	3.5	9.0	7.22
Overall Assessment	9.0	5.0	9.5	7.0	5.0	7.0	6.0	2.5	7.0	6.44

In addition to the five sections scored by the panel of experts the following comments were offered as constructive criticism.

1. The simplistic approach of the module has definite merit.
2. There is a good selection of problems.
3. Explanations on preparing and interpreting the balance sheet and income statement are extremely helpful.
4. While the module is complete, the writer might consider the introduction of the expanded equation sooner so that the student can get the total picture.
5. The instructor could be brought into the evaluation process more frequently. For example -- spot check evaluation throughout the module.
6. Develop strategies using different types of media.
7. More interaction is needed between the instructor and the student.
8. Develop a systematic procedure to link test items with performance objectives.
9. The module is generally well-organized.
10. Include a methodology section in the teacher's manual.
11. The language used is often too technical for students.
12. Use a real case study rather than a hypothetical case.
13. Assign textbook exercises rather than repeating them in the module.
14. Reword readings to a more appropriate level unless you are aiming at the more able student.
15. Provide for different levels of achievement in exercises and tests.
16. Consider the use of slang -- today's adolescent will probably appreciate it -- but will 1981's child.
17. The use of slang served as a good motivational approach to learning.

18. Specify the remedial exercises used in the module.
19. The income statement should be taught before revenue and expense transactions.
20. One or two cases should be added to master the last performance objective.
21. Teach how to analyze a case study in the module.
22. More data is needed to support each objective. Zero in on the data presented in each subsection, eliminate unnecessary data unless it is used to check the student's ability to sift out correct and important material.
23. Illustrations could be improved as well as the financial statement forms used in the module.
24. Layout of content raises readability problem -- too crowded.
25. There is a continual referral to the instructor without the provision of material to the instructor for those students who do not meet the stated criteria.
26. There should be more original writing in the module rather than extracting available materials.
27. There is some failure to see how all individual differences are accommodated.
28. Field-testing would improve the module's organizational problems.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

Purpose of the Study

The purpose of the study was to develop an individualized competency-based accounting module for an introductory high school accounting course. The topic of the module, the accounting equation, used the equation approach as its conceptual framework. Although the equation has fourteen steps to the teaching of the accounting cycle, the module developed in this study was limited to the first five steps. These five steps were: (1) introducing the equation; (2) the balance sheet; (3) analyzing balance sheet transactions using the accounting equation; (4) expanding the equation; and (5) the income statement.

The accounting equation approach to the teaching of accounting was supported by the belief that it was the most efficient method to overcome the vocabulary problem associated with high school accounting. Also, the accounting equation approach was consistent with the ideas of double entry bookkeeping and checks and balances, the foundation of the study of accounting.

One of the main purposes for this study was to develop a reliable module which could be used in a classroom situation at some future date. To accomplish this a panel of experts was selected to evaluate the module. Opinions from the panel of experts were taken as professional advice and a revised module was developed to reflect the recommendations from the panel of experts.

Research Procedures

The research procedures for this study included two major steps: (i) gathering information; and (ii) selecting a panel of experts.

Gathering Information

Contacts were made by letter to Professor H. J. Kaluza, Dr. M. D'Onofrio, and Dr. D. Weaver, concerning information about competency-based education and/or individualized instruction in accounting. These individuals offered support by agreeing to take part in the study and supplying the researcher with the names of educational agencies which would have access to curriculum materials useful for the study. It was the intention of this study to use these curriculum materials in the development of the module.

Curriculum materials were collected and adapted to a curriculum design which had a conceptual framework based on the principles of competency-based education and individualized instruction. The publishers were informed by letter stating the source and pages of the curriculum materials which were developed by them and adapted to the module. McGraw-Hill Book Company in Scarborough,

and New York gave the researcher a copyright clearance in writing and specified the procedures which were to be followed when adapting curriculum materials developed by the publishers. Evaluation sheets were devised for the pre-test, post-test, and the module from the review of the literature.

Panel of Experts

Twelve experts in education were approached in writing asking if they would take part in the study. Ten replied in the affirmative. The ten experts who would make up the panel were employed in various educational positions and represented an equitable cross-section of professionals in the public education system.

The selection of the panel of experts was carried out by the researcher and his advisor. Each expert was to evaluate three items: (i) the pre-test and solutions; (ii) the post-test and solutions; and (iii) the accounting module and solution manual. Evaluation sheets accompanied each component of the exercise. From the findings, a revised module, pre-test, and post-test, was designed to reflect the common consensus of the panel of experts.

Summary of Findings

The findings were summarized according to the questions asked to the nine responding experts concerning the pre-test, post-test, and the module. Because the experts were asked identical questions for the pre-test and the post-test, the findings have been grouped together in this summary.

The questions and responses for the pre-test and post-test included:

1. Are the types of items appropriate for the learning outcomes to be measured? Seven out of nine experts agreed that the questions measured the appropriate learning outcomes for both the pre-test and the post test.
2. Do the test items measure an adequate sample of student performance for each type of interpretation to be made? Eight out of nine experts felt that the test items measured an adequate sample of performance for each type of interpretation to be made in both the pre-test and the post-test.
3. Do the test items present clear and definite tasks to be performed? Eight out of nine experts confirmed that the test items presented clear and definite tasks to be performed in both the pre-test and the post-test.
4. Are the items of appropriate difficulty for the learning outcomes to be measured? Eight out of nine experts believed that the items were of appropriate difficulty for the learning outcomes which were measured in both the pre-test and the post-test.
5. Are the test items free from any technical defects? While six out of nine experts agreed that the test items were free from technical defects in the pre-test, seven out of nine experts believed that the test items were free from technical defects in the post-test.
6. Are the test items numbered in consecutive order? All of the experts agreed that the test items were numbered in consecutive order in both the pre-test and the post-test.
7. Are specific, clear directions provided for each section of the test, and for the test as a whole? All of the experts reported that specific and clear directions were provided for each section of the test and for the test as a whole in both the pre-test and the post-test.

Some of the additional comments concerning the pre-test and the post-test recorded by the panel of experts included:

1. Students should prepare either an income statement and a balance sheet in the tests.
2. Some of the test items were at a rote-memory level and as a result the tests did not measure an adequate level of student performance.
3. There is far too much content in the tests.
4. The questions should be keyed according to specific objectives so that problem areas can be identified for the student.
5. An original test should be prepared rather than relying on the validity of a commercially prepared progress test which has been well-circulated.
6. The pre-test and post-test should be exactly the same so that a statistical analysis could be performed for each student.
7. Instructions should be written after the pre-test which tell the student what he or she is to do next.

The nine responding experts answered the following questions on the module evaluation.

1. Is each performance objective stated in measurable (observable) terms? Seven out of nine experts agreed that each performance objective was stated in measurable terms.
2. Is the performance objective limited enough to be attained? Eight out of nine experts felt that each performance objective was limited enough to be attained.
3. Is the performance objective relevant to a more general objective? Eight out of nine experts stated that each performance objective was relevant to a more general objective.
4. Are the directions stated clearly? Seven out of nine experts believed that the directions were stated clearly.
5. Do the items provide direct measures of all the tasks described in the performance objectives? Seven out of nine experts reported that the test items provided direct measures of all the tasks described in the performance objectives.

6. Has a reasonable standard of mastery been set? Eight out of nine experts stated that a reasonable standard for mastery has been set.
7. Are the directions for procedure stated clearly? Eight out of nine experts reported that the directions for procedures were stated clearly.
8. Do the materials and activities contribute to the achievement of performance objectives? Seven out of nine experts confirmed that the materials and activities contributed to the achievement of performance objectives.
9. Is there a variety of types and levels of learning materials? Six out of nine experts confirmed that there is a variety of types and levels of learning materials present in the module.

In addition to these questions the nine experts evaluated the module according to a ten-point scale. The score for the objectives ranged from a low of 3.5 to a high of 9.0 with a mean of 7.56. The score for the organization of materials ranged from a low of 2.5 to a high of 9.0 with a mean of 7.39. The score for methodology ranged from a low of 2.5 to a high of 9.0 with a mean of 6.67. The score for evaluation ranged from a low of 3.5 to a high of 9.0 with a mean of 7.22. Finally, the score for the overall assessment of the module ranged from a low of 2.5 to a high of 9.5 with a mean of 6.44.

Some of the additional comments concerning the module evaluation included:

1. An 80% mastery standard should be established in exercises dealing with financial statements.
2. Use only service firms when doing introductory topics.
3. Have additional exercises at the end of the module.

4. Use a variety of methods, strategies and media to offer variety in the module.
5. Use short paragraphs aimed at the average student's reading level.
6. Provide a marking scheme and methodology section in the solution manual.
7. Bring the instructor into the learning process often.
8. Link test items with the performance objectives in the module.
9. Assign textbook exercises rather than repeating the exercises in the module.
10. Specify remedial exercises.
11. Teach how to analyze a case study in the module.
12. Content layout should make the module easy to read.
13. More original writing is needed in the module.
14. Learning activities should include all levels of the cognitive domain.

CONCLUSIONS

The research procedures and the summary of the findings illustrated how the study was completed and what recommendations the panel of experts had for producing a valid pre-test, post-test, and learning module. As a result, the following conclusions have been reached.

1. If a textbook provides the content, scope, and sequence of the module, then exercises from the textbook should be assigned to students, rather than repeating the textbook exercises in the module.
2. In the module, clear and simple language should express the main ideas from the text. Listing examples, short exercises, or the use of point form may serve this need.
3. The pre-test and post-test should be identical for the purpose of statistical analysis. Both tests should contain sufficient content for the instructor to analyze potential difficulties that students may encounter.
4. Illustrate the complexities of learning such as the relationship between the test items and performance objectives.
5. Specify general objectives and general competencies along with specific objectives and specific competencies to achieve a vertical learning hierarchy. If this was taken into the total conceptual design, then questions other than objective-type may be used so that students can demonstrate competence in understanding vocabulary, concepts, and principles of accounting.
6. Behavioral objectives should include the type of performance by an action verb, the condition under which learning will take place, and a measure or standard for determining whether or not the student attained the objective.
7. Individual differences should be accommodated by allowing different routes for achieving a stated objective.

8. Remedial and enrichment exercises should be stated in the module.
9. If the student is to analyze a case, instructions should be given to illustrate this procedure.
10. Interaction between the instructor and the student can occur when there is some allowance for spot-checking.
11. Instructions should be specified after the pre-test, each learning activity, and the post-test to inform students of the next procedure.
12. A marking scheme should be included in the instructor's manual to determine if the mastery level for the objectives have been met.

The revised pre-test and solutions, post-test and solutions, and the module and accompanying instructor's manual, in Appendix I, illustrated these conclusions.

RECOMMENDATIONS FOR FUTURE RESEARCH

In addition to the recommendations formulated in the conclusions, this study indicated that there were further recommendations which should be considered for future research. These recommendations included:

1. Pilot test the module, pre-test and post-test to determine its validity in a classroom situation.
2. The conceptual design should be incorporated for the entire book, Accounting: A Systems Approach written by H. J. Kaluza.
3. The conceptual design should be adapted to other introductory accounting textbooks to determine the flexibility of the curriculum design.
4. The conceptual design should be used for business subjects other than introductory accounting.
5. Several studies on individualized instruction could include:
 1. The teacher's role as a manager or facilitator of information in an individualized instructional accounting system;
 2. The students perception of his or her performance in an individualized instructional system; and
 3. Administrating individualized instructional systems for business education.
6. Several studies on competency-based business education could include:
 1. The competencies needed in an introductory accounting class to meet the needs of the clerical-bookkeeping job market;
 2. Competencies needed in business subject areas other than accounting to meet the needs of the employment market; and
 3. Designing a co-operative competency-based business education system using a variety of agencies such as education, business, labour, and government.

7. This study should be replicated in total, or in part, to determine its research validity.

FOOTNOTES

Chapter I

¹ Benjamin S. Bloom, "Mastery Learning," in Mastery Learning: Theory and Practice, ed: James H. Block (New York: Holt, Rinehart and Winston, 1971), p. 47.

² The terms "norm-referenced education" and "averaged-based education" are interchangeable. For a discussion of averaged-based education see Kay P. Torshen, The Mastery Approach to Competency-Based Education (New York: Academic Press, 1977), pp. 9-18.

³ Glen Heathers, "A Working Definition of Individualized Instruction," Educational Leadership 34 (February 1977): 342

⁴ Walter Meigs, Charles E. Johnson, and J. David Blazouske, Accounting: The Basis for Business Decisions (Toronto: McGraw-Hill Book Company, 1964), p. 1.

⁵ Henry J. Kaluza, Accounting: A Systems Approach (Toronto: McGraw-Hill Ryerson Limited, 1976), viii.

⁶ See Appendix A.

⁷ Policies Commission for Business and Economic Education, "This We Believe About Competency-Based Education," in Policies Commission for Business and Economic Education 1959-1979, eds: Hobart H. Conover, Adele F. Schrag, and Eugene D. Wyllie (Reston, Virginia: National Business Education Association, 1980), p. 36.

⁸ Policies Commission for Business and Economic Education, "This We Believe About Implementing Individualization of Instruction in Business Education," in Ibid., p. 32.

⁹ Ibid.

¹⁰ Kathryn White, "Review of Research on Individualized Instruction in Business Skill Subjects," Business Education Forum, (January 1976): 29-33

¹¹ Shirley Schooley, "Review of Research on Individualized Instruction in Nonskill Business Subjects," Business Education Forum, (January 1976): 36.

¹²Vocational-Technical Educational Consortium of the States, "A Catalog of Performance Objectives, Criterion-Referenced Measures and Performance Guides" (State of Alabama: Department of Education, 1976).

¹³John E. Graham, "A Proecess for the Design of Individualized Learning Units Implemented in a Competency-Based Learning System fo Accounting" (Ph.D. dissertation, University of Pittsburgh, 1975).

¹⁴Louis Chacon Jr., and Toby D. Jalowsky, "Individualizing Business Education Instruction at the Secondary Level," Alternative Learning Styles in Business Education in Yearbook No. 17 of the National Business Education Association (Reston, Virginia, 1979), p. 60.

¹⁵Carter V. Good, ed., Dictionary of Education, 3rd ed. (New York: McGraw-Hill Book Co., 1973), p. 6.

¹⁶Ibid., p. 393.

¹⁷Ibid., p. 68.

¹⁸Ibid.

¹⁹John E. Graham, "A Process for the Design . . . , p. 6.

²⁰Good, ed., Dictionary of Education, p. 125.

²¹Ibid., p. 357.

²²Ibid., p. 158.

²³Ibid., p. 404.

²⁴Kaluza, Accounting: A Systems Approach, p. viii.

²⁵Good, p. 262.

²⁶Ibid., p. 305.

²⁷Ibid., p. 373.

²⁸Ibid., p. 307.

²⁹Ibid.

³⁰Ibid., p. 352.

³¹John E. Graham, "A Process for the Design . . . , p. 7.

³²Good, p. 358.

³³Vocational-Technical Education Consortium of the States, A Catalog of Performance Objectives, Criterion-Referenced Measures and Performance Guides, p. 3.

³⁴Good, p. 306.

³⁵Ibid.

³⁶Ibid., p. 31.

Chapter II

³⁷See Appendix B.

³⁸W. E. Hathaway, "Competency-Based Education: Issues and Implications for Cooperation Across Educational Institutions and Levels" (Unpublished Paper, Salem, Oregon, 1976) cited in William C. Spady, "Competency-Based Education: A Bandwagon in Search of a Definition," Educational Researcher (January 1977): 9.

³⁹A. A. Schneider, "Profile of the States in Competency-Based Education," Performance-Based Teacher Education 3 (1974): 5 and D. A. Trivett, "Competency Programs in Higher Education," ERIC/Higher Education Report No. 7 (1975). See also Spady, p. 9.

⁴⁰Spady, pp. 8-10.

⁴¹I. D. Glick, M. J. Henning and J. R. Johnson, "How to Prevent a Second Orthodoxy," Educational Technology (August 1975): 333-337.

⁴²Spady, p. 10.

⁴³Gene E. Hall and Howard L. Jones, Competency-Based Education: A Process for the Improvement of Education (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1976), p. 22.

⁴⁴John E. Graham, "Competency-Based Accounting Instruction," Journal of Business Education (January 1977): 184.

⁴⁵Torshen, The Mastery Approach to Competency-Based Education, p. 19.

⁴⁶Ibid., p. 41.

⁴⁷Policies Commission for Business and Economic Education, "This We Believe About Competency-Based Education," p. 36.

⁴⁸Estelle L. Popham, Adele Frisbe Schrag, and Wanda Blockhus, A Teaching Learning System for Business Education (New York: McGraw-Hill Book Company), p. v.

⁴⁹I. D. Glick, M. J. Henning, and J R. Johnson, pp. 17-20 and Lawrence W. Erickson, "Competency-Based Business Education," NABTE Review Issue No. 5 (1978): 35.

⁵⁰Glick, Henning, and Johnson; and Erickson, p. 36.

⁵¹Individualization in Schools: The Challenge and the Options. Education U.S.A. Special Report. Washington, D. C: National Schools Public Relations Association, 1971.

⁵²Maurice Gibbons, "What is Individualized Instruction?" Interchange I (1970): 28.

⁵³Ibid., pp 28-52.

⁵⁴William Hedges, Changes in Innovation in Elementary and Secondary Organization, ed: Maurice Hillson and Ronald T. Hyman, 2nd ed, (New York: Holt, Rinehart and Winston, 1971), pp. 217-218.

⁵⁵Norman E. Gronlund, Individualizing Classroom Instruction (New York: MacMillan Publishers, 1974), p. 3.

⁵⁶Ibid., p. 2.

⁵⁷Ibid.

⁵⁸John J. Connolly and Thomas Sepe, "Do Students Want Individualized Instruction?" (Los Angeles, California: Clearing House for Junior College Information, July, 1972), p. 5.

⁵⁹Preston W. Search, An Ideal School, or Looking Forward (New York: Appleton-Century-Crafts, 1901).

⁶⁰Katherine C. Mayhew and Anna C. Edwards, The Dewey School (New York: Appleton-Century-Crafts, 1936), p. 20.

⁶¹Clarence Evans, "Individualized Instruction Versus Traditional Instruction," (Unpublished Master's Paper, University of Pittsburgh, 1970) quoted in John E. Graham, "A Process Design of Individualized Learning Units Implemented in a Competency-Based Learning System for Accounting," p. 13.

⁶²John E. Graham, "A Process for the Design of . . . , p. 15.

⁶³D. W. Washburne, "Educational Measurements and a Key to Individualizing Instruction and Promotion," Journal of Educational Research 5 (1922): 193-206.

⁶⁴D. M. Lindvall and Richard C. Cox, "The Role of Evaluation in Programs for Individualized Instruction," Educational Evaluation: New Roles, New Means, the NSSE Sixty-Eighth Yearbook, pt. 2 (Chicago, Illinois: University of Chicago Press, 1969), p. 157.

⁶⁵Ivor K. Davies, Competency Based Learning: Technology, Management and Design (New York: McGraw Hill, 1973), p. 21.

⁶⁶Robert M. Gagné, The Conditions of Learning, 2nd ed. (New York: Holt, Rinehart and Winston, 1970).

⁶⁷Ibid. and Davies, pp. 97-102.

⁶⁸Edward L. Thorndike, Individuality, ed: H. Suzzallo (New York: Houghton Mifflin Company, 1911), p. 51.

⁶⁹Cited in Graham, "A Process for the Design of . . . , p. 16.

⁷⁰Robert M. Gagné, ed., Learning and Individual Differences (Columbus, Ohio: Charles E. Merrill Books, 1967) and Lee J. Cronbach and P. E. Snow, Individual Differences in Learning Ability as a Function of Instruction Variables, Final Report (Stanford University, School of Education, 1969).

⁷¹James L. Jenkins, "Individual Differences in Verbal Learning," Learning and Individual Differences; Irving Maltzman, "Individual Differences in Attention: The Orienting Reflex," in Ibid.; and Richard C. Anderson, "Individual Differences and Problem Solving," in Ibid.

⁷²William R. Powell, "The Background of Individual Differences," Perspectives in Individualized Learning, ed: Robert A. Weisgerber (Itasca, Illinois: F. E. Peacock Publishers, Inc., 1971), p. 107.

⁷³Benjamin S. Bloom, "Implications of the I. E. A. Studies for Curriculum and Instruction," School Review (May 1974): 413-435.

⁷⁴John B. Carroll, "A Model for School Learning," Teacher's College Record 64 (1963): 725.

⁷⁵Ibid.

⁷⁶James H. Block and Lorin W. Anderson, Mastery Learning in Classroom Instruction (New York: MacMillan Publishing Co., 1975), p. 2.

⁷⁷Ibid.

⁷⁸Carroll, p. 725.

⁷⁹Benjamin S. Bloom, "Mastery Learning," in Mastery Learning: Theory and Practice, ed. James H. Block (New York: Holt, Rinehart and Winston, 1971), Chapter 4; and James H. Block, "Introduction to Mastery Learning: Theory and Practice," in Ibid., pp. 6-7.

⁸⁰Ibid.

⁸¹Ibid.

⁸²Benjamin S. Bloom, J. Thomas Hastings and George F. Madaus, Handbook on Formative and Summative Evaluation of Student Learning (New York: McGraw-Hill Book Company, 1971) pp. 44-47.

⁸³Benjamin S. Bloom, "Learning for Mastery," in Ibid., pp. 41-60. An excellent summary of the components of the mastery model can be located in Torshen, The Mastery Approach to Competency-Based Education, pp. 42-44.

⁸⁴ John Williams, "Mastery Learning in Business Education," NABTE Review 4 (1977).

⁸⁵ David B. Gurlnik, ed., Webster's New World Dictionary (Toronto: Popular Library, 1979), p. 607.

⁸⁶ Davies, Competency-Based Learning, p. 13.

⁸⁷ Richard J. McArdle and Michael L. Moskovis, "Developing Instructional Systems," The Balance Sheet 83 (February 1972): 196.

⁸⁸ Cited in Graham, "A Process for the Design. . . , p. 24.

⁸⁹ Davies, p. v.

⁹⁰ Jerome Bruner, The Process of Education (New York: Random House, 1960).

⁹¹ Joe Lars Klingstedt, "Philosophical Basis for Competency-Based Education," in Competency-Based Education -- An Introduction, eds: Richard W. Burns and Joe Lars Klingstedt (Englewood Cliffs, New Jersey: Educational Technology Publications, 1973), p. 14.

⁹² John C. Flanagan, "Project Plan: Basic Assumptions, Implementation and Significance," in Individualized Instruction -- Programs and Materials, ed: James E. Duane (Englewood Cliffs, New Jersey: Educational Technology Publications, Inc., 1973).

⁹³ Margaret C. Wang, Lauren B. Resnick and Patricia A. Shuetz, "PEP in the Frick Elementary School: Interim Evaluation of the Primary Education Project," (Working Paper No. 57, University of Pittsburgh, Learning Research and Development Center, 1970).

⁹⁴ Robert C. Scanlon, "Individually Prescribed Instruction: A System of Individualized Instruction," in Individualized Instruction -- Programs and Materials, ed: James E. Duane.

⁹⁵ Shirley Schooley, "Review of Research on Individualized Instruction in Non Skill Business Subjects," pp. 33-37.

⁹⁶ George Laren Humbarger, "The Influence of Teaching Methods and Textbooks on Student Rate and Quality of Achievement in Book-keeping" (Ph.D. dissertation, Indiana University, 1969).

- ⁹⁷ Summarized from Schooley, p. 33.
- ⁹⁸ Gerald D. Huston, "An Analysis of Programmed Instruction and Testing of a Programmed Unit for High School Bookkeeping" (Ph. D. dissertation, University of Iowa, 1966).
- ⁹⁹ Summarized from Schooley, pp. 33-34.
- ¹⁰⁰ William E. Gibbs, "The Development and Evaluation of Programmed Instructional Materials in Beginning Bookkeeping (Ph.D. dissertation, University of California, 1969).
- ¹⁰¹ Summarized from Schooley, p. 34.
- ¹⁰² Mildred W. Glover, "An Experiment in the Use of Programmed Instruction in Elementary College Accounting" (Ph.D. dissertation, Elizabeth City State University, 1972).
- ¹⁰³ Domenic S. Orefice, "An Experiment to Determine the Effectiveness of Programmed Instruction in Elementary Accounting" (Ph.D. dissertation, Rutgers University, 1971).
- ¹⁰⁴ Charles D. Cloud, "An Experimental Study Comparing the Effectiveness of Programmed Instruction and the Conventional Method of Teaching First Semester Principles in Accounting" (Ph.D. dissertation, Arizona State University, 1971).
- ¹⁰⁵ Ronald I. Hileman, "An Analysis of Selected Factors Related to Success in the Study of First Semester College Accounting" (Ph.D. dissertation, University of Pittsburgh, 1972).
- ¹⁰⁶ Gary I. Prickett and Eugene F. Butts, "The Effect of Audio-Tutorial and Programmed Laboratories on Achievement in Accounting Principles" (Ph.D. dissertation, University of Northern Colorado, 1969).
- ¹⁰⁷ Schooley, p. 34.
- ¹⁰⁸ Frank A. Singer, "Self Instructional Materials for Topics in Elementary Accounting -- A Means to the Demonstration of Pay-Offs from Individualizing Time to Complete Final Report" (Ph.D. dissertation, Amherst University, 1972).
- ¹⁰⁹ Schooley, pp. 34-35.

¹¹⁰Charles C. Speer, "An Experiment in Individualized Instruction," Business Education Forum 27 (October 1972): 58-60.

¹¹¹Schooley, pp. 34-35.

¹¹²John E. Graham, "A Process for the Design . . ."

¹¹³*Ibid.*, Appendix I.

¹¹⁴*Ibid.*

¹¹⁵*Ibid.*

¹¹⁶*Ibid.*

¹¹⁷*Ibid.*

¹¹⁸*Ibid.*

¹¹⁹Graham, "Competency-Based Accounting Instruction," p. 187.

¹²⁰Hall and Jones, pp. 11-12.

¹²¹Davies, p. 123.

¹²²William A. Forr and Lester M. Yerkes, "Modularizing Distributive Education," Business Education Forum (May 1971): 22.

¹²³Donald Blume, "Modular Schedule at a Two-Year High School," Business Education Forum (May 1971): 22.

¹²⁴Graham, "A Process Design . . . , p. 21.

¹²⁵Hall and Jones, p. 97.

¹²⁶*Ibid.*, p. 48.

¹²⁷The first authority to differentiate between summative and formative evaluation was Michael Scriven. For a detailed account of this type of evaluation see: Michael Scriven, "The Methodology of Evaluation," in Perspectives of Evaluation, ed: Robert Stake (Chicago, Illinois: Rand McNally, 1967). For a practical

approach to the construction of criterion-referenced tests for competency-based education and individualized instruction see Norman E. Gronlund, Preparing Criterion Referenced Tests for Classroom Instruction (New York: MacMillian Publishing Inc., 1973).

¹²⁸ Benjamin S. Bloom, ed., Taxonomy of Educational Objectives: The Classifications of Educational Goals -- Handbook I -- Cognitive Domain (New York: Longman, 1956). Some have argued that there are only five categories of cognitive development. For this argument see Torshen (1977) where she lists Analysis and Application at the same level or level 3.

¹²⁹ David R. Krathwohl, Benjamin S. Bloom, and Bertram B. Masia, Taxonomy of Educational Objectives: The Classification of Educational Goals -- Handbook II -- Affective Domain (New York: David McKay Company, Inc., 1964).

¹³⁰ Paper delivered by Elizabeth Simpson in Urbana, Illinois, at the University of Illinois (1966).

¹³¹ Robert M. Gagné, "Curriculum Research and the Promotion of Learning," in Perspectives of Curriculum Evaluation, ed: Robert Stake (Chicago, Illinois: Rand McNally, 1967).

¹³² Jo Ann Hennington, "Strengths and Weaknesses of Behavioral Objectives," Evaluation and Accountability in Business Education in Yearbook No. 18 of the National Business Education Association (Reston, Virginia, 1978), p. 26.

-123-

APPENDICES

APPENDIX A: Letters for copyright clearance



The University of Manitoba
Faculty of Education

K. Blinkhorn, Rm. 411,
Department of Curriculum
Mathematics and Natural Sciences

Winnipeg, Manitoba, Canada R3T 2N2

Mrs. L. McKechnie,
General Manager,
School Division,
McGraw-Hill Ryerson, Ltd.,
330 Progress Ave.,
Scarborough, Ontario. M1P 2Z5

May 5, 1980

Dear Mrs. McKechnie:

I am a graduate student at the University of Manitoba. I have almost completed all of the requirements for my master of education degree in business education. The final requirement for my degree is a practicum. For my practicum I am designing a competency-based module for an introductory high school accounting course.

I have chosen the accounting equation as my topic. My module is drafted and is to be evaluated by a panel of experts who will check for validity and generally appraise the module for accuracy and other stated criteria.

My purpose is to devise a module that can fit within a conceptual framework. I have checked the textbooks used by high schools in the province of Manitoba and have come to the conclusion that Professor H. J. Kaluza's textbook, Accounting: A Systems Approach meets most of the criteria for my practicum.

Professor Kaluza is one of the panelexperts who will be evaluating my module. Professor Kaluza was my instructor when I completed my Bachelor of Education Degree at the University of Western Ontario. I asked Professor Kaluza if I could use some of his material and he gave me verbal permission to use his textbook, progress tests, and solution manual. He told me to write to you for a copyright clearance. This study will not be reproduced for remuneration. I will be using Professor Kaluza's textbook and supporting materials as part of the module for the final requirement in my master of education degree. I have enclosed a list of pages which I will be using in my module.

Could you please write back to me confirming my request.

Thank you for your cooperation with my future educational needs, and I will be looking forward to your reply.

Yours very truly,

K. W. Blinkhorn

Rec'd by



The University of Manitoba
Faculty of Education

Department of Curriculum
Mathematics and Natural Sciences

Winnipeg, Manitoba, Canada R3T 2N2

For my module I will be including the following:

Progress Tests 1 and 2, and the solutions.

The contents from Chapters 1 and 2, with specific references to:

Pages: 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 30 31, 32, 33, 34, 35,
38, 39, 41.

Problems: page 18 problem 3-2; page 28 problem 1-4; page 29 problem 1-7;
and page 37 problem 2-3; page 38 problem 2-5; page 42 problem 3-1;

Solutions; page 43 problem 3-2; page 43 problem 3-3; page 43 problem 3-4
page 43 problem 3-5; page 50 Management Case 4; and
page 21 Management Case 2.

Transparencies: 1, 2, 14, 15, 18, 19.

May 5/80

McGraw-Hill Ryerson Limited
330 Progress Avenue
Scarborough, Ontario M1P 2Z5
Telephone 416/293-1911, Telex 065-25169



1980 06 04

Mr. K. Blinkhorn
Department of Curriculum
Room 411
Faculty of Education
University of Manitoba
Winnipeg, MB R3T 2N2

Dear Mr. Blinkhorn:

Please accept my apologies for the delay in responding to your letter of May 5, requesting copyright clearance on some of the material in Accounting: A Systems Approach.

This will confirm your request to use the listed excerpts from the text, working papers and solutions manual, to be used in the practicum you are designing as the final requirement for your master of education degree in business education. This permission is granted on the condition, of course, that the resulting study will not be offered for sale and that the source will be acknowledged.

Best wishes for your progress in this work. I would appreciate receiving a copy of the practicum when it is completed.

Yours truly,


Eleanor McKechnie
Publisher
School Division

/lk



The University of Western Ontario

Faculty of Education
Althouse College
London, Canada
N6G 1G7

May 23, 1980

Mr. K. W. Blinkhorn
Room 411
Mathematics and Natural Sciences Curriculum
Faculty of Education
The University of Manitoba
Winnipeg, Manitoba R3T 2N2

Dear Ken:

This letter will acknowledge permission, given earlier in oral terms, to allow you to use my publication of accounting materials for use in your module.

As indicated earlier, I am pleased to offer support in view of your decision to use the accounting equation approach.

If I can be of further help, please do not hesitate to call on me.

Sincerely yours,

H. J. Kaluza, Professor

Gregg Division

McGraw-Hill Book Company

1221 Avenue of the Americas
New York, New York 10020



June 9, 1980

Mr. K. W. Blinkhorn
Room 411
The University of Manitoba
Faculty of Education
Winnipeg, Manitoba
Canada R3T 2N2

Dear Mr. Blinkhorn:

We are happy to grant you permission for the reproduction of material from ACCOUNTING 10/12 and the accompanying Individualized Learning Guides for use in your research paper only. In doing so, we ask that you observe the following conditions:

1. That the reproduced material will not be offered for sale or distribution through any commercial channels.
2. That the reproduced material will be offered to users free of charge.
3. That a credit line showing the authors, title, copyright notice, and the following statement will appear on the reproduced material:
"Reproduced with permission."

Please sign the enclosed copy of this letter and return it to me for our files.

Thank you for writing, Mr. Blinkhorn

Cordially yours,

James B. Maher
Controller

ea
Enclosure

Approved: _____

-130-

APPENDIX B: Letter to United States Office of Education
and their reply.

Phone: 1-204-269-8832

94 Le Maire Street,
Winnipeg, Manitoba
Canada, R3V 1C9

January 22, 1980.

U. S. Department of Health, Education,
and Welfare,
Office of Education
400 Maryland Avenue, S. W.,
Washington, D. C. 20202

Dear Sirs/Madam:

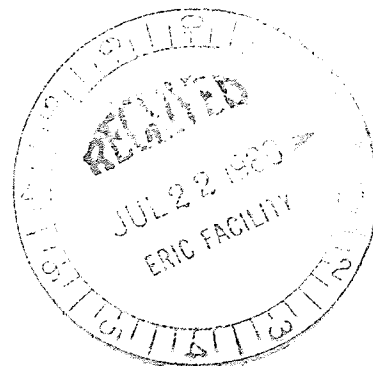
I am a graduate student at the University of Manitoba and I am working on an individualized competency-based accounting module for a project. I have been in contact with Professor M. J. D'Onofrio who informed me that I should write to your office on information in the National Curriculum Network for the coordination and dissemination of curriculum materials.

Would you please send me a listing of such materials on individualized and/or competency-based materials for accounting.

Thank you for your concern with my future education and I will look forward to your reply.

Yours truly,

Kenneth Blinkhorn



JUL 24 1980



PROCESSING AND REFERENCE FACILITY

4833 RUGBY AVENUE, SUITE 303, BETHESDA, MARYLAND 20014 • (301) 656-9723

OPERATED FOR THE NATIONAL INSTITUTE OF EDUCATION by ORI, Inc., Information Systems Division

In reply to your inquiry:

The Educational Resources Information Center (ERIC), within the National Institute of Education (NIE), publishes a monthly abstract journal, *Resources in Education** (RIE), which announces research reports and other non-journal literature of interest to the educational community. These documents are cataloged, abstracted, and indexed by subject, author or investigator, and responsible institution.

Resources in Education started publication in November 1966 and can be purchased in single copies or on current subscription from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Annual cumulations are regularly reprinted: sets for 1966-1978 can be obtained from Macmillan Information, 216R Brown Street, Riverside, New Jersey 08075; sets for 1979 and forward can be obtained from Oryx Press, 2214 North Central at Encanto, Phoenix, Arizona 85004.

ERIC also sponsors *Current Index to Journals in Education* (CIJE), which indexes articles appearing in over 700 journals. These journals represent the core of the periodical/serial literature in the field of education. CIJE is published by Oryx Press (see address above).

Individual monthly volumes and semiannual cumulations of *Resources in Education* and *Current Index to Journals in Education* are available in many college and university libraries, as well as in some special libraries. Many of these libraries are open to the public for on-site reference, and many also have complete ERIC microfiche collections. *Resources in Education* is also available in many school systems at the state and local level. All routine searches for documentary material should begin with *Resources in Education*.

Reports announced in *Resources in Education* (except for some copyrighted material) can be purchased in microfiche or paper copy from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210. All orders should cite the Document Accession Number (ED#). EDRS prices change periodically in response to economic forces, and the latest issue of *Resources in Education* should always be examined to determine the latest price schedule. Articles announced in *Current Index to Journals in Education* are not available from EDRS. They can be consulted by reference to the original journal issue containing them, or through the use of journal article reprint services, such as University Microfilms International, 300 N. Zeeb Road, Ann Arbor, Michigan 48106.

Enclosed is literature listing the ERIC Clearinghouses and their primary areas of subject coverage. Clearinghouses' major products (i.e., bibliographies, reviews, state-of-the-art reports, monographs, etc.) are announced in *Resources in Education*. The Clearinghouses have some resources for reference and bibliographic services in their specific subject areas and will answer requests for information.

Sincerely yours,

(Mrs.) Dorothy A. Slawsky
Reference Librarian
ERIC Processing and Reference Facility

*Formerly *Research in Education*

Enclosures

JUL 24 1980



PROCESSING AND REFERENCE FACILITY

4833 RUGBY AVENUE, SUITE 303, BETHESDA, MARYLAND 20014 • (301) 656-9723

OPERATED FOR THE NATIONAL INSTITUTE OF EDUCATION by ORI, Inc., Information Systems Division

Thank you for your request for information from the Educational Resources Information Center (ERIC). Since the large amount of mail we receive makes it impossible to write you a personal letter, we are answering your inquiry by checking and/or annotating one or more of the following paragraphs:

- I. _____ The document(s) requested can be purchased from the ERIC Document Reproduction Service (EDRS), P. O. Box 190, Arlington, Virginia 22210. An order form is enclosed for your convenience.

ED NUMBERMICROFICHE PRICEPAPER COPY PRICE

- II. _____ The document(s) requested can be obtained from:

_____ A. U.S. Government Printing Office (GPO), Washington, D.C. 20402. _____

_____ B. National Technical Information Service (NTIS), Springfield, Va. 22161. _____

_____ C. The following source; _____

- III. _____ The document(s) requested is/are enclosed.

- IV. _____ The subject in which you are interested is represented by documents in the ERIC data base. These documents can be identified by searching ERIC's abstract journals, Resources in Education (RIE) and Current Index to Journals in Education (CIJE).

✓ A. Suggested index terms under which you may search are: _____

Accounting; Individualized Instruction

_____ B. Examples of accessions which may be relevant to your subject are: _____

- V. Your inquiry is also being referred to: _____

Sincerely yours,

(Mrs.) Dorothy A. Slawsky
Reference Librarian
ERIC Processing and Reference Facility

APPENDIX C: Letter written to and replies from educational institutions concerning the collection of curriculum material for this study.

94 Le Maire Street,
Winnipeg, Manitoba.
R3V 1C9

1-204-269-8832

November 7, 1979

Dr. David Weaver,
Director of Research,
McGraw-Hill Book Company,
1221 Avenue of the Americas
New York, New York 10020

Dear Dr. Weaver:

I am a business education graduate student at the University of Manitoba. For the past few months I have been studying individualized instruction. I am interested in this area because I believe individualized instruction as a philosophy which best meets individual student needs.

This summer, I talked to Henry Kaluza on the telephone concerning my interest in individualized instruction. I was formally a student of Professor Kaluza's accounting program in the faculty of education at the University of Western Ontario. Professor Kaluza informed me that you might be able to tell me what accounting programs have been individualized by McGraw-Hill.

If you have knowledge of such programs could you please inform me either by telephoning me collect or in writing.

I would appreciate the opportunity to examine any modules or kits that you might have. If you could mail these out to me I would return them by insured registered mail.

Thank you for your interest in my future educational needs.

I will look forward to your reply.

Yours respectfully,

K. W. Blinkhorn

94 Le Maire Street,
Winnipeg, Manitoba.
R3V 1C9

1-204-269-8832

November 7, 1979.

Miss Terry Martin,
Sales Representative, Manitoba,
Cage Publishing Limited,
164 Commander Blvd.,
Agincourt, Ontario.
M1S 3C7

Dear Miss Martin:

I am a business education graduate student at the University of Manitoba. For the past few months I have been studying individualized instruction. I am interested in this area because I believe individualized instruction as a philosophy which best meets individual student needs.

In your catalogue, I noticed that you have W. F. Pillsbury's individualized instruction Century 21 Accounting-Introductory Course. It would be very helpful to my study if I could examine this material.

Could you please send me the complete course including the module study guides and accompanying audio-visual materials. I will return this material to you after I have examined the course organization and insure the package so that it will return safely to you.

If you have any questions please feel free to call me collect, or you may write to me.

Thank you for your interest in my future educational needs.

Yours respectfully,

K. W. Blinkhorn

94 Le Maire Street,
Winnipeg, Manitoba.
R3V 1C9

January 14, 1980.

Mrs. Patricia Warwick,
Co-ordinator of Curriculum,
Business Education,
Correspondence Courses,
909 Yonge Street,
Toronto, Ontario.

Dear Mrs. Warwick:

During the 1976-1977 academic year I was a student of Henry Kaluza at the University of Western Ontario. At present, I am completing my Master of Education at the University of Manitoba. This past Christmas holidays, I visited Professor Kaluza and informed him that I will be working on an individualized accounting module for beginning high school students. He informed me that you have a series of twenty lessons and four examinations for grade 13 at your office.

Professor Kaluza told me to write to you to see if I could get the first five lessons.

If you have any questions please feel free to contact me and I will look forward to your reply.

Thank you for your interest in my future educational needs.

Yours truly,

Ken Blinkhorn.

Phone: 1-204-269-8832

94 Le Maire Street,
Winnipeg, Manitoba.
ROC 1N0

1-204-269-8832

February 19, 1980

Ms. Marion Elliot,
McGraw-Hill Ryerson Limited,
330 Progress Avenue,
Scarborough, Ontario.

Dear Ms. Elliott:

I am a business education graduate student at the University of Manitoba. For my practicum requirement I am designing a learning module for a selected topic in a high school introductory accounting course.

I was a student of Professor Henry Kaluza when I received my Bachelor of Education degree at the University of Western Ontario in 1976. Professor Kaluza informed me that if I wrote to you, you could supply with the teaching manual, tests, and study guides that accompany his textbook, Accounting: A Systems Approach. It is my intention to adapt some of these materials to my learning module. Once I have completed this task, I will return the materials to you.

If you have any questions please feel free to call me collect, or you may write to me.

Thank you for your interest in my future educational needs.

Yours respectfully,

K. W. Blinkhorn

McGraw-Hill Book Company

1221 Avenue of the Americas

New York, New York 10020

Telephone 212/997-1221



January 29, 1980

Mr. K. W. Blinkhorn
94 Le Maire Street
Winnipeg, Manitoba
R3V 1C9
Canada

Dear Mr. Blinkhorn:

The ACCOUNTING 10/12 high school accounting program is available for standard large groups, small groups, and individual use.

In this program the same textbook is used, but the working papers and learning guides differ. For individual use we have the individualized learning guides available. For group use they have regular working papers.

I am asking the Gregg Division of McGraw-Hill to send you a copy of the McGraw-Hill textbook with the individualized learning guides, Parts 1 and 2. If you will look at the learning guides you will see that the material is broken down into small key sections in the back of the book. You may keep these materials for your own use.

After you have received the books and had an opportunity to review them, let me know if you want to discuss the method any further.

Please give my regards to Henry Kaluza.

Sincerely,

David H. Weaver
Vice President
Director of Editorial Planning
and Research

/ep

cc Henry J. Kaluza
Donald Cripps

McGraw-Hill Ryerson Limited
330 Progress Avenue
Scarborough, Ontario M1P 2Z5
Telephone 416/293-1911, Telex 065-25169



February 29, 1980.

K. W. Blinkhorn,
94 Le Maire Street,
Winnipeg, Manitoba.
ROC 1N0

Dear Ms. Blinkhorn:

Under separate cover I am sending you the Teacher's Resource Book and Working Papers and Study Guides 1, 2 and 3 to accompany ACCOUNTING: A SYSTEMS APPROACH by Henry Kaluza. It will not be necessary for you to return the Working Papers and Study Guides, just the Resource Manual.

Good luck with your project.

Sincerely,

Mrs. M. Anderson,
Editorial Secretary,
School Division.

/ma



University of Wisconsin—Madison

DEPARTMENT OF CONTINUING AND VOCATIONAL EDUCATION

*264 Teacher Education Building, 225 North Mills Street, 263-4630
276 Teacher Education Building, 225 North Mills Street, 263-4640
208 Agriculture Hall, 1450 Linden Drive, 262-1361
120 Home Economics Building, 1300 Linden Drive, 262-2660
112 Teacher Education Building, 225 North Mills Street, *Departmental Office*, 263-2-
Madison, Wisconsin 53706

December 11, 1979

Mr. Ken Blinkhorn
94 Le Maire Street
Winnipeg
Manitoba, Canada R3V 1C9

INDIVIDUALIZED AND/OR COMPETENCY BASED MATERIALS FOR ACCOUNTING

Ken, enclosed is a sample of curriculum materials in accounting prepared by VTECS, The Vocational-Technical Education Concoctium of States. In addition, enclosed are curriculum modules in data processing developed by the State of Wisconsin. I have not had the opportunity to review them as I received them yesterday and am sending them directly to you. You may keep them for a period of one month; therefore, please return them no later than January 31, 1980.

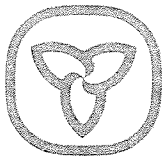
You may be interested in contacting the U.S. Office of Education for information on the National Curriculum Network in the United States set up for the coordination and dissemination of curriculum materials.

If I may be of further assistance, please do not hesitate to contact me.

MARIANNE J. D'ONOFRIO
ASSISTANT PROFESSOR

mk

Enclosures



Ontario

-142-

Ministry of
Education

Correspondence
Education
Branch

Telephone
416 / 965- 7326

909 Yonge Street
Toronto, Ontario
M4W 3G2

February 29, 1980

Dear Mr. Blinkhorn:

Thank you for requesting a sample of our Accounting materials. Enclosed with this letter are the first five lessons of our Grade 13 Accounting AC550 course. I hope this sample will be useful to you in developing curriculum.

I'm sorry for the delay in my response to your request.

Yours truly,

Patricia A. Warwick,
Curriculum Co-ordinator,
Program, Planning and Development Section

PAW/clt

Encl.

Mr. Ken Blinkhorn
94 Le Maire Street
Winnipeg, Manitoba
R3V 1C9

APPENDIX D: An example of the letter written to twelve selected experts in education asking if they would take part in the study.

March 14, 1980.

Dear

I am a graduate student at the University of Manitoba. I am presently enrolled in the Master of Education degree program in business education. Dr. G. H. J. Porozny is my advisor.

I have almost completed all of my course work and the final requirement for my degree is a practicum. For this requirement, I am developing an individualized competency-based accounting module which can be adapted to a first year high school accounting course. The tentative title of my practicum is: "A Process Design and the Development of a Competency-Based Accounting Module for a Selected Individualized Unit in an Introductory High School Accounting Course." The topic I have selected is the accounting equation.

I will be selecting a panel of experts to make suggestions and recommendations once a tentative module has been completed. I will then modify the module according to suggestions and recommendations outlined by the panel of experts. I will submit the revised module and accompanying chapters, which will comprise the practicum to my committee as the final requirement for the Master of Education degree at the University of Manitoba.

My committee members at the University of Manitoba are: Dr. G. H. J. Porozny (Advisor); Dr. A. M. McPherson (Department Head: Mathematics and Natural Sciences); and Dr. J. A. Riffel (Department Head: Educational Administration and Foundations).

Would you be willing to act as one of the panel of experts for this project?

The module will probably consist of approximately ten lessons and an accompanying evaluation sheet, with instructions, will be provided. I will be sending the module and evaluation sheet to the panel of experts on April 18, 1980 and I would like to have them returned to me by May 23, 1980.

If you are unable to serve as one of the panel of experts, I will still keep you informed about my progress.

Thank you for all of your assistance, and I will be looking forward to your reply.

Yours respectfully,

K. W. Blinkhorn

APPENDIX E: Replies from ten experts confirming that
they will serve as the panel of experts.



UNIVERSITY OF REGINA

REGINA, CANADA

S4S 0A2

FACULTY OF EDUCATION

April 1, 1980

K. W. Blinkhorn
University of Manitoba
Faculty of Education
Room 411
Winnipeg, Manitoba

The module you are developing in accounting which may be adapted to a first year high school accounting course sounds like a very valuable exercise.

I will be pleased to sit on a panel of experts to make suggestions and recommendations on the module.

The date of April 18 suits me very well. I plan to leave Regina for a vacation beginning April 30 so it would be imperative that I return this to you by that date.

Congratulations on your progress toward a Master of Education degree. There is certainly a great need for graduate research in the field of business education and business teacher education.

Dr. Eleanor Bujea
Business Teacher Education



RIDGEMONT HIGH SCHOOL

2597 ALTA VISTA DRIVE, OTTAWA K1V 7T3
PHONE 733-4860

G. M. PETTINGER
PRINCIPAL
V. L. D'AMICO, B.
VICE PRINCIPAL
N. A. ROBERTSON
VICE PRINCIPAL

March 19, 1980

Dear Mr. Flinkhorn

I would be pleased to act on your panel.
The practicum you have chosen appears to be very
interesting and is the type of work I have been
involved with lately.

Good luck with your work and I look
forward to seeing your material.

Sincerely

Vic D'Amico

vld



University of Wisconsin—Madison

DEPARTMENT OF CONTINUING AND VOCATIONAL EDUCATION

- * 264 Teacher Education Building, 225 North Mills Street, 263-4630
- 276 Teacher Education Building, 225 North Mills Street, 263-4640
- 208 Agriculture Hall, 1450 Linden Drive, 262-1361
- 120 Home Economics Building, 1300 Linden Drive, 262-2660
- 112 Teacher Education Building, 225 North Mills Street, *Departmental Office*, 263-
Madison, Wisconsin 53706

March 31, 1980

Mr. K.W. Blinkhorn
Room 411
Department of Curriculum
Mathematics and Natural Sciences
The University of Manitoba
Winnipeg, Manitoba
CANADA R3T 2N2

PANEL OF EXPERTS - MASTER'S DEGREE PROJECT IN ACCOUNTING

Mr. Blinkhorn, I would be pleased to be one of your panel members for the purpose of reviewing your individualized competency-based accounting module.

I look forward to receiving your module and hope your work is progressing on schedule.

MARIANNE J. D'ONOFRIO
ASSISTANT PROFESSOR

mk



DEPARTMENT OF EDUCATION

Program Development and Support Services

Curriculum Services

Telephone: 786-0317

Robert Fletcher Building

411 - 1181 Portage Avenue

Winnipeg, Manitoba

R3G 0T3

1980 03 27

Mr. K.W. Blinkhorn
Room 411
Department of Curriculum
Mathematics and Natural Science
Faculty of Education
University of Manitoba
Winnipeg, MB
R3T 2N2

Mr. Blinkhorn, I enjoyed reading your letter of 1980 03 14 in which you explained the practicum requirement for your Master of Education degree program in business education.

Thank you for sharing this information with me and for outlining your proposal and the procedures you intend to follow for your practicum. I appreciate your inviting me to act as a member of the panel to make suggestions and recommendations for the module and the accompanying evaluation sheet of your practicum.

I shall be happy to serve as one of the panel members. I look forward to receiving a copy of your project and to assisting you with its development.

Isabella Dryden
Business Education Consultant

IMD/dd



ROBERT MORRIS COLLEGE

PITTSBURGH CENTER: 610 FIFTH AVENUE, PITTSBURGH, PENNSYLVANIA 15219 (412) 734-0440
MOON CAMPUS: NARROWS RUN RD., MOON TOWNSHIP, CORAOPOLIS, PA. 15108 (412) 264-9300

March 24, 1980

Mr. K. W. Blinkhorn
Room 411, Dept. of Curriculum
Mathematics and Natural Sciences
The University of Manitoba
Winnipeg, Manitoba
CANADA R3T 2N2

Dear Mr. Blinkhorn:

Thank you for your letter of March 15 in which you indicate your intentions to prepare some individualized material in accounting for your master's degree practicum.

Yes, I would be happy to serve on a panel of experts for this project. I might also refer you to a summary of the work which I completed for my dissertation; it appeared in the Journal of Business Education, January 1977. You may find it helpful in your review of the literature.

If there is any other way in which I may be of help to you, please do not hesitate to contact me.

Sincerely yours,

John E. Graham, Chairman
Business and Office Education

ac

165 Eveline Street
Selkirk, Manitoba
R1A 1L1
1980 03 22

K. Blinkhorn
Mathematics and Natural
Sciences
Faculty of Education
University of Manitoba
Winnipeg, Manitoba
R3T 2N2

In reply to your letter of March 14,
I will be pleased to serve on the panel to
review your individualized module for use in
high school accounting.

Sincerely,

Ken Hardy



The University of Western Ontario, London, Canada

Faculty of Education

March 20, 1980

Mr. Ken Blinkhorn
Room 411
Department of Curriculum
Mathematics and Natural Sciences
Faculty of Education
The University of Manitoba
Winnipeg, Manitoba R3T 2N2

Dear Ken

Thank you for your letter of March 14.

I would be pleased to serve as one of the panel of "experts" to evaluate your module on A Process Design and the Development of a Competency-Based Accounting Module for the introduction of accounting through the accounting equation.

I look forward to your material by April 18, 1980.

Good luck with your project.

Sincerely,

H. J. Kaluza, Professor
Business and Computer Studies Department (Faculty of Education)
and Department of Secretarial and Administrative Studies
(Social Science Faculty)

P.S. I am now engaged between two faculties at Western. Half of my time is with the Faculty of Ed; the other, with a new honours course in Administrative Studies (competes with the School of Business for accounting majors). I now teach a course called Administrative Studies 360-361 (Intermediate Financial Accounting) now sanctioned for credit hours with the Canadian Institute of Chartered Accountants and also supported for credit through the RIA.

1980 04 14

K. W. Blinkhorn
Room 411
Faculty of Education
The University of Manitoba
Winnipeg, MB R3T 2N2

Dear K. Blinkhorn:

Yes, I am willing to act as one of the panel for
your project.

Moving the return date ahead to early June will
greatly be appreciated.

My telephone numbers, if needed are:

Home: 1-425-3371

School: 1-425-3535

I hope I can be helpful.

Yours truly,
~ ^

B. Siwak
Shevchenko (4-12) School
Vita, MB R0A 2K0

/bs

McGraw-Hill Book Company
1221 Avenue of the Americas
New York, New York 10020
Telephone 212/997-1221



March 20, 1980

Mr. K. W. Blinkhorn
Department of Curriculum
Mathematics and Natural Sciences
The University of Manitoba
Winnipeg, Manitoba
R3T 2N2
Canada

Dear Mr. Blinkhorn:

Thank you for updating me on the progress of your masters work at The University of Manitoba. Your research project sounds very interesting and will be one that could be very useful and informative to accounting instructors.

As a person who is always interested in research and accounting, I certainly would be willing to participate as a panel of experts member for your project. You can count on me to complete, if at all possible, your request within the time period.

You have my wishes for success, and I look forward to hearing from you.

Sincerely,

David H. Weaver
Vice President
Director of Editorial Planning
and Research

/ep

THE UNIVERSITY OF BRITISH COLUMBIA
2075 WESBROOK MALL
VANCOUVER, B.C., CANADA
V6T 1W5

FACULTY OF EDUCATION

1980 03 19

Mr. K. W. Blinkhorn
Room 411
Dept. of Curriculum
Faculty of Education
University of Manitoba
Winnipeg, MB R3T 2N2

Dear Mr. Blinkhorn:

I would be happy to act as a panel member if you could extend your deadline to the end of May.

I will be absent from campus for a month, and don't believe I would have sufficient time to finish by May 23. Could you let me know your decision before Easter?

Sincerely,

Dr. Shirley Wong

APPENDIX F: A sample letter sent to each expert outlining
the evaluation procedures.

May 7, 1980.

Dear

I have completed the initial draft of my module which I wrote to you about and I would like you to evaluate the contents.

Enclosed please find the following items:

1. Pre-test and Solutions and a Pre-test Evaluation Sheet. Please fill out the pre-test evaluation form. Extensive comments are invited on the form and directly on the pre-test.
2. Post-test and Solutions and a Post-test Evaluation Form. Please fill out the post-test evaluation form. Extensive comments are invited on the form and directly on the post-test.
3. Solutional Mannual, Module Evaluation Sheet and the Accounting Equation Module. The solution manual and the module evaluation form are clipped together for convenience. Use the module evaluation sheet to evaluate the module. The module consists of the accounting equation module, the pre-test and solutions and the post-test and solutions. Extensive comments concerning editing, organization, or any which you feel pertinent are invited.

When you have completed the above could you please return all of the evaluation forms, the post-test and pre-test, and the module to me by June 23, 1980. Early returns will be most appreciated.

Please indicate whether or not you would like a final copy of the accounting equation module. This module will include a pre-test, post-test and lessons. I will mail these materials to those who indicate that they would like the final copy when I have completed this project.

Thank you for all of your assistance and I will be anxiously waiting for your reply.

Yours very truly,

K. W. Blinkhorn,
University of Manitoba,
Faculty of Education,
Department of Curriculum:
Mathematics and Natural Sciences,
Room 411,
Winnipeg, Manitoba. R3T 2N2

PANEL OF EXPERTS

Dr. Eleanor Bujeau,
Faculty of Education,
University of Regina,
Regina, Saskatchewan.

Mr. Victor D'Amico,
Vice Principal,
Ridgemont High School,
2597 Alta Vista Drive,
Ottawa, Ontario. K1V 7T3

Dr. M. J. D'Onofrio,
University of Wisconsin,
Department of Continuing and
Vocational Education,
264 Teacher Education Building,
225 North Mills Street,
Madison, Wisconsin. 53706

Miss Isabella Dryden,
Consultant in Business Education,
Department of Education,
Province of Manitoba,
408-1181 Portage Avenue,
Winnipeg, Manitoba.

Dr. John Edward Graham,
President,
Robert Morris College,
Narrows Run Road,
Coraopolis, Pennsylvania. 15108

Mr. Kenneth Hardy,
Department of Business
Teacher Education,
Red River Community College,
2055 Notre Dame Ave.,
Winnipeg, Manitoba. R3H 0J9

Professor H. J. Kaluza,
Althouse College of Education,
University of Western Ontario,
London, Ontario. N6G 1G7

Mr. W. Siwak,
Shevenko Collegiate,
Vita, Manitoba.

Dr. David Weaver,
Director of Research,
McGraw-Hill Book Company,
1221 Avenue of the Americas,
New York, New York. 10020

Dr. Shirley Wong,
Faculty of Education,
University of British Columbia,
2125 Main Mall,
Vancouver, B. C. V6T 1Z5

APPENDIX G: Follow-up letters.

Box 175,
Hodgson, Manitoba.
ROC 1N0

March 19, 1981.

Miss Isabella Dryden,
Consultant in Business Education,
Department of Education,
408-1181 Portage Avenue,
Winnipeg, Manitoba.

Dear Miss Dryden:

Once again I am teaching at Peguis and like so many graduate students I did not complete my thesis. Despite this deficiency, my thesis is progressing quite well and should be completed soon.

I have checked my records and it seems that your evaluation of my module never arrived. I realize that there are many reasons for this. One reason could be that it was lost in the mail, or another reason might be that you may not have had enough time in your busy schedule to evaluate the module. Whatever the reason I would consider your evaluation of my module as a definite asset for my study. As a result I am sending you another copy of the module, and evaluation sheets with the hopeful intention that you could evaluate my module.

If you do not have enough time to evaluate my module, or if you sent the module and somehow it did not reach please let me know by writing to me at the above address.

Thank you for all of your cooperation with my study and I will look forward to your reply.

Yours very truly,

K. W. Blinkhorn

Box 175.
Hodgson, Manitoba.
ROC 1N0

March 12, 1981.

Dr. David Weaver,
Director of Research,
McGraw-Hill Book Company,
1221 Avenue of the Americas,
New York, New York. 10020

Dear Dr. Weaver:

Further to our discussion on the telephone last Tuesday, and in accordance with your secretary's instructions today I am submitting you a copy of my module.

Once again, thank you for all your assistance and I sincerely appreciate the time and effort you will be going through again evaluating my module.

I will very much look forward to your reply.

Yours Respectfully,

K. W. Blinkhorn

APPENDIX H: Evaluation Sheets

Evaluation Sheets for the Pre-test and Post-test - 163

Evaluation Sheets for the Module - 171

EVALUATION FORMS FOR THE PRE-TEST AND POST-TEST

This is an extension of the evaluation checklist in Norman E. Grunlynd's book,

Preparing Criterion-Referenced Tests For Classroom Instruction. New York: Macmillan, 1973.

PLEASE FEEL FREE TO COMMENT EXTENSIVELY ON THE ITEMS. YOUR COMMENTS WILL HELP ME A GREAT DEAL WHEN I
REVISE THE PRE-TEST AND THE POST-TEST.

PLEASE CIRCLE YES OR NO AFTER EACH QUESTION

PLEASE FEEL FREE TO COMMENT AFTER EACH QUESTION
DETAILED COMMENTS WILL BE MOST APPRECIATED

3. Do the test items present clear and definite
tasks to be performed?

YES NO

4. Are the test items of appropriate difficulty
for the learning outcomes to be measured?

YES NO

PLEASE CIRCLE YES OR NO AFTER EACH QUESTION	PLEASE FEEL FREE TO COMMENT AFTER EACH QUESTION DETAILED COMMENTS WILL BE MOST APPRECIATED
1. Are the types of items appropriate for the learning outcomes to be measured? YES NO	
2. Do the test items measure an adequate sample of student performance for each type of interpretation to be made? YES NO	

PLEASE CIRCLE YES OR NO AFTER EACH QUESTION

PLEASE FEEL FREE TO COMMENT AFTER EACH QUESTION
DETAILED COMMENTS WILL BE MOST APPRECIATED

5. Are the test items free from technical defects?
(clues, ambiguity, inappropriate reading
level).

YES NO

6. Are the test items numbered in consecutive
order?

YES NO

PLEASE CIRCLE YES OR NO AFTER EACH QUESTION	PLEASE FEEL FREE TO COMMENT AFTER EACH QUESTION DETAILED COMMENTS WILL BE MOST APPRECIATED				
7. Are specific, clear directions provided for each section of the test, and for the test as a whole? YES NO					
OVERALL ASSESSMENT - <u>Extensive Comments would be appreciated</u> <table border="1"><thead><tr><th><u>STRENGTHS</u></th><th><u>WEAKNESSES</u></th></tr></thead><tbody><tr><td></td><td></td></tr></tbody></table>		<u>STRENGTHS</u>	<u>WEAKNESSES</u>		
<u>STRENGTHS</u>	<u>WEAKNESSES</u>				

STRENGTHS

WEAKNESSES

Other Comments:

RECOMMENDATIONS: Please prioritize, if possible.

A MODULE EVALUATION FORM.

This form was derived from two sources: 1. Norman E. Gronlund, Individualizing Classroom Instruction. New York: MacMillan, 1973; and 2. Maurice J. Eash, "Developing an Instrument for Assessing Instructional Materials," Curriculum Theory Network Monograph Supplement, Curriculum Evaluation: Potentiality and Reality, No. 8-9, 1971-1972, pp. 192-220.

PLEASE FEEL FREE TO COMMENT EXTENSIVELY ON ANY OF THE ITEMS.

YOUR COMMENTS WILL HELP ME A GREAT DEAL WHEN I REVISE THE MODULE.

PLEASE CIRCLE YES OR NO AFTER EACH QUESTION

PLEASE FEEL FREE TO COMMENT AFTER EACH QUESTION
DETAILED COMMENTS WILL BE MOST APPRECIATED

MODULE EVALUATION

OBJECTIVES: Is each performance objective stated
in measurable (observable) terms?

YES NO

OBJECTIVES: Is each performance objective
limited enough to be attained?

YES NO

PLEASE CIRCLE YES OR NO AFTER EACH QUESTION	PLEASE FEEL FREE TO COMMENT AFTER EACH QUESTION DETAILED COMMENTS WILL BE MOST APPRECIATED
<u>Module Evaluation (Continued)</u> OBJECTIVES: Is each performance objective relevant to a more general objective? YES NO	
PRE-TEST AND POST-TEST: Are the directions stated clearly? YES NO	

PLEASE CIRCLE YES OR NO AFTER EACH QUESTION

PLEASE FEEL FREE TO COMMENT AFTER EACH QUESTION
DETAILED COMMENTS WILL BE MOST APPRECIATED

Module Evaluation (Continued)

PRE-TEST AND POST-TEST:

Do the items provide direct measures of all the
tasks described in the performance objectives?

YES NO

PRE-TEST AND POST-TEST:

Has a reasonable standard of mastery been set?

YES NO

PLEASE CIRCLE YES OR NO AFTER EACH STATEMENT	PLEASE FEEL FREE TO COMMENT DETAILED COMMENTS WILL BE MOST APPRECIATED
<u>Module Evaluation (Continued)</u> LEARNING TASKS: Are the directions for procedures clearly stated? YES NO	
LEARNING TASKS: Do the materials and activities contribute to the achievement of the performance objectives? YES NO	

PLEASE CIRCLE YES OR NO AFTER EACH STATEMENT	PLEASE FEEL FREE TO COMMENT DETAILED COMMENTS WILL BE MOST APPRECIATED
<u>Module Evaluation (Continued)</u> LEARNING TASKS: Is there a variety of types and levels of learning materials? YES NO	

SUMMARY RATING: In this section please make an X on the rating scales for Objectives, Organization of Materials (Scope and Sequence), Methodology, Evaluation, and Overall Assessment. Please feel free to make detailed comments after each rating. These comments will help me revise my module.

Generally speaking the scale would be rated as follows: 1 - 4 poor; 5 - 7 average; and 8 - 10 excellent.

Module Evaluation (Continued)

SUMMARY RATING

OBJECTIVES:



Vague, unclear. Those included are not useful and confusing.

Average, some of the criteria for objectives are met, some are missing, and at times inconsistent.

The objectives are stated clearly and are in behavioral terms. Excellent, one of the best. Useful for students and teachers.

COMMENTS:

ORGANIZATION OF MATERIALS (Scope and Sequence)



Illogical and puzzling.
Does not appear to have
subjected material to
any analysis to build an
instructional design.

Average in organization.
Some help but teacher must
supply much of organizational
sequence.

Excellent organization of
scope and Sequence. Conceptually
developed based on consistent
theory.

COMMENTS:

METHODOLOGY

1	2	3	4	5	6	7	8	9	10
Very little help is given on methodology, or methodology is too abstract and complex for most students and teachers.				Gives help to teacher but would like more. Some students would be able to cope with methodology but others wouldn't.				Uses a variety of modes of transactions. Does not chain a teacher to a mode without reason.*	

*Modes of transactions:

A transaction is the interaction of a learner and stimuli in this context consisting of instructional materials. A mode is the channel that is used. (Joel Weiss (ed) Curriculum Theory Network Monograph Supplement, Curriculum Evaluation: Potentiality and Reality, n 8/9, 1971-1972, p. 204.)

COMMENTS:

Module Evaluation (Continued)

SUMMARY RATING

EVALUATION:



Haphazard in approach. Product and process learning either entirely neglected or confused. Lists items, but poorly constructed, no evidence of testing. Students receive no assistance through feedback.	Range of evaluation limited. Evaluation limited to product and process.	Has criterion-referenced procedures where appropriate. Student obtains assistance through feedback evaluation.

COMMENTS:

OVERALL ASSESSMENT:



Poorly designed, conceptually weak and inconsistent or haphazard design. Appears to have inaccurate assumptions about children who will be using the material.

Has strengths and weaknesses, but most teachers would find it satisfactory. On the balance comes out about average, would need considerable supplementary effort by teachers.

Excellent, one of the best by comparison with other available material. Shows consistent instructional design. Would recommend highly

COMMENTS:

Module Evaluation (Continued)

OTHER COMMENTS:

Module Evaluation (Continued)

RECOMMENDATIONS: Please prioritize, if possible.

APPENDIX I: The Revised Module

The Accounting Equation Module	185
Accounting Equation Module Test - Form 1	300
Accounting Equation Module Test - Form 2	312
Accounting Equation Module - Instructor's Manual	320

THE ACCOUNTING EQUATION MODULE

TABLE OF CONTENTS

<u>Topics</u>	<u>Page</u>
TO THE STUDENT	1
TOPIC 1: INTRODUCING THE ACCOUNTING EQUATION	5
The Case of Far Out Joey Spacely	6
TOPIC 2: THE BALANCE SHEET	23
TOPIC 3: ANALYZING CHANGES IN THE ACCOUNTING EQUATION	41
TOPIC 4: THE EXPANDED EQUATION	62
TOPIC 5: THE INCOME STATEMENT	83
TOPIC 6: THE INCOME STATEMENT AND RELATED BALANCE SHEET	102

TO THE STUDENT

The Accounting Equation Module is designed for an introductory accounting course. The module is used in conjunction with a current authorized accounting textbook in the province of Manitoba. The textbook, Accounting: A Systems Approach (Toronto: McGraw-Hill, 1976), written by H. J. Kaluza, uses the equation approach for the teaching of accounting concepts and principles. The word equation should not be viewed in negative terms because any equations which you will attempt to solve are extremely elementary. The accounting equation is necessary in the study of accounting because it represents the foundation for accounting entries and it provides a basis for the preparation of financial statements. For these and other reasons, which will become more apparent once you have worked through the module, the accounting equation is of fundamental importance to an introductory high school accounting course.

Procedures

Before you begin the module you will be given a pre-test (accounting module test - form 1). The purpose of the pre-test is to determine what you already know. The pre-test will not be used in the calculation of your grade. The pre-test will be used by your instructor to determine what emphasis should be placed on your learning experiences while you are working in the module.

You will progress through the module by following the directions and completing the learning tasks. For you to proceed from one learning task to another you must meet the minimum standard. If you do not achieve the minimum standard you will complete additional learning tasks until this is accomplished. All of the instructions, notes, and necessary paper are in the module. Because you are using a textbook, the module represents a guide for

you to learn the accounting concepts and principles which are necessary in an introductory high school accounting course.

When you have completed all of the learning tasks according to the minimum standard you will write a post-test (accounting equation module test - form 1). Your instructor will compare the score on your pre-test with the score on your post test. If you meet the criteria on each part of the test you have completed module 1 successfully. If you do not meet the criteria you will be given another post-test (accounting equation module test - form 2) to see if you can meet the criteria. This process will continue until you meet the criteria

Unlike other courses where you are compared to students in your class and must complete a certain amount of work within a specified time limit, this module assumes that if you are given enough time you will be able to master all of the content in the module. Therefore, two essential things that you must remember are: (1) you can do all of the work in the module if you are given enough time; and (2) although you may need to consult your instructor periodically, you have the opportunity to accept the responsibility for teaching yourself.

General Objectives

In addition to the specific performance objectives which state the expected behavior the student will do for each learning task, this module has some general objectives that the student will be expected to perform after completing the module. These general objectives require the student to:

A. Define the following terms:

(i) economic resources; (ii) claims of creditors; (iii) claims of the

the owner; (iv) the basic equation; (v) the accounting equation; (vi) assets; (vii) liabilities; (viii) owner's equity; (ix) debtor; (x) creditor; (xi) cash; (xii) accounts receivable; (xiii) equipment; (xiv) owner's equity; (xv) bank loan payable; (xvi) accounts payable; (xvii) notes payable; (xviii) mortgage payable; (xix) balance sheet; (xx) liquidity; (xxi) the expanded equation; (xxii) revenue; (xxiii) expense; (xxiv) net income; (xxv) net loss; (xxvi) capital; (xxvii) profit.

- B. Understand the relationship between:
 - (i) the basic equation and the accounting equation;
 - (ii) the accounting equation and the balance sheet;
 - (iii) the expanded equation and the income statement;
 - (iv) the expanded equation and the balance sheet;
 - (v) the income statement and related balance sheet.
- C. Prepare and interpret a balance sheet and an income statement to determine the financial position of a particular business enterprise.
- D. Appreciate the necessity of recording business transactions and financial statements.
- E. Organize financial data into meaningful business transactions and financial statements.

Competencies

A minimum competency or standard has been set for each performance objective. The general competencies which the student will acquire after completing the module include:

Mathematical Competencies - short cut calculations solving for an unknown and balancing.

Organizational Competencies - organizing financial data into meaningful financial statements.

Cognitive Competencies - identifying accounting terms and concepts.

Affective competencies - appreciation of accounting as a worthwhile career.

Psychomotor Competencies - preparation of financial statements in accordance with a specified criteria.

S. I. Units *

The material in this module has been written to conform to the International Systems of Units (SI) in accordance with the Metric Style Guide, published by the Council of Ministers of Education, Canada.

The traditional comma in dollar amounts has been eliminated to conform to the following recommendation of the Metric Style Guide:

"The use of the comma to separate sets of three digits to the left of the decimal point is now to be discontinued; a space is left where we used to put a comma."

This style rule applies to digits to the right of the decimal point as well. Since dollar amounts in accounting are commonly applied in columns with other numbers, the space is consistently applied in numbers with four digits or more.

Description of New Learning Concepts

In addition to the text, the Case of Far Out Joey Spacely is used to illustrate all of the new concepts in this module.

ASK YOUR INSTRUCTOR FOR A PRE-TEST (Accounting Module Test - Form 1)

*Kaluza, Accounting: A Systems Approach, p. ix.

TOPIC 1: INTRODUCING THE ACCOUNTING EQUATION

PERFORMANCE OBJECTIVE 1:

After reading topic 1 from the text and the case of Far Out Joey Spacely the student will be able to:

- (a) identify in writing a minimum of three economic resources needed by Far Out Joey Spacely to begin his concert sales business;
- (b) define the collective term, economic resources from the list of items needed to begin the business; and
- (c) identify in writing a minimum of two sources where Far Out Joey Spacely can go to get the economic resources required to begin his concert sales business.

INSTRUCTIONS:

Read Topic 1 (pages 2 to 7) in your text.

Read the Case of Far Out Joey Spacely.

Complete Learning Task 1.

THE CASE OF FAR OUT JOEY SPACELY

Far Out Joey Spacely has never been a conformist and that attribute has posed many personal problems for him. You are all probably too young to remember the influences of the social events in the late 1960s and early 1970s such as the changes in dress, attitude, values and beliefs which were in contradiction to and even challenged the traditional assumptions of the previous decade. Far Out Joey Spacely was deeply affected by these changes and became involved in the social protest movement.

The social protest movement took many forms. One form was measured in music. The late 1960s and early 1970s witnessed a change in popular music from light rock and roll like the hits played on the television series Happy Days to heavy or psychedelic rock performed by musical groups such as the Jimi Hendrix Experience, Cream, Jefferson Airplane, the Mothers of Invention, the Grateful Dead and others. These groups were very critical of the social inequities which existed in their world. In folk music prominent singers like Pete Seeger, Bob Dylan, and Joan Baez preferred to sing about the Vietnam War, Civil Rights, and other social issues rather than singing about the legends which typified the earlier decades.

Far Out Joey Spacely had always been interested in music. During his teenage years he had a rock and roll band which played at high school dances and small club dates. Far Out Joey decided to leave music and get a job because his rock and roll band did not make enough money to consider music a worthwhile career. Reluctantly, Far Out Joey Spacely entered the business world.

Far Out Joey Spacely perceived the business world as a straight place where squares tried to make a menial living. One day Far Out Joey Spacely told a

friend of his that he was tired of being surrounded by people who were more concerned about material things from nine until five every day and he would quit while he still had some intelligence left. But Far Out Joey Spacely persisted with his job and the business world for awhile so that he could make money to go to concerts and buy records. The business world was not as straight as Far Out Joey Spacely thought but it appeared straight and even downright boring because Far Out Joey Spacely did not know anything about it. What Far Out Joey Spacely really disliked was that he was continually told what to do. To put it simply, Far Out Joey Spacely did not like to take orders.

Far Out Joey Spacely was in a more fortunate position than most people his own age. His parents had bought him an endowment policy which was supposed to go towards a university education. Far Out Joey Spacely did not want to go to university and decided to take the money from the endowment policy and invest it in his own business. The business which Far Out Joey Spacely set up was a sales ticket agency specializing in jazz, blues and, of course, rock and roll.

LEARNING TASK 1*

Fill in the blanks for the following questions.

1. What does Far Out Joey Spacely need to begin his business?

2. What collective term or words can be given to all of the above items.

3. How will Far Out Joey Spacely acquire the needed economic resources?

(Give at least 2 sources)

EVALUATION

Check your answer on the back of this page. It is very important that you understand these terms.

* The questions for this learning task were taken from the instructors manual accompanying Kaluza's textbook. See transparencies 1, 2, and 3.

Answers for Learning Task 1

1. Cash, Building, Office Equipment, Cash Register, Furniture, Sales Tickets, Land.
2. Economic Resources
3. Borrowing from Banks, Credit Companies, or purchasing goods from companies or individuals which allow time payments;
Investment by owner. Cash or other economic resources. Cash is the usual case.

Answer for Learning Task 2

ECONOMIC RESOURCES	=	CLAIMS OF CREDITORS	+	CLAIMS OF OWNER
\$34 900	=	\$24 900	+	\$10 000

Economic Resources

Cash	_____
Land	_____
Building	_____
Cash Register	_____
Furniture	_____
	TOTAL

Claims of Creditors

Banks	_____
Finance Company	_____
Other Creditors (time payments)	_____
	TOTAL

Claims of Owner

Investment by Owner	_____

EVALUATION:

The following equation should be true

ECONOMIC RESOURCES = CLAIMS OF CREDITORS + CLAIMS OF OWNER

\$ _____ = \$ _____ + \$ _____

If the equation agrees, then proceed to the next section and read about the components of the accounting equation. If the equation is not in agreement, change the figures until the equation is true. Do not continue until you have proved the equation.

Remember not to include commas in your figures.

Eg. \$1 000 would be written instead of \$1,000.

Similarly, \$10 000 instead of \$10,000, etc.

INSTRUCTIONS

Read and understand the following. It is a summation of pages 3 and 4 of the important points in your textbook. You will need to understand this before you can attempt learning task 2.

You have now learned three important concepts that represent a basic equation.

ECONOMIC RESOURCES

- are needed to
- start a business

A PERSON ACQUIRES ECONOMIC RESOURCES THROUGH

- borrowing; and
- investment by the owner

When a business borrows or owns money the person or business who loaned the money is known as a creditor. A person or business who allows a time payment is considered a creditor. These individuals are said to have a claim against the economic resources of the business. A basic equation which relates the claims of the owner and the claims of the creditors to the economic resources of a business is:

THE BASIC EQUATION

ECONOMIC RESOURCES

=

CLAIMS OF CREDITORS + CLAIMS OF OWNER

Four important points are worth remembering about this equation:

1. The equation is simply a shorthand way of explaining the relationship between economic resources and how they are acquired.
2. Economic resources have been placed on the left side of the equation, while claims against those economic resources have been placed on the right side of the equation.
3. Claims against the resources come from two sources. The claims of creditors and the claim of the owner through investment.
4. The equal sign means that the basic equation must balance.

PERFORMANCE OBJECTIVE 2:

Given the basic equation, economic resources = claims of creditors + claims of the owner, the student will write the balance for economic resources, claims of creditors, and claims of the owner, for Far Out Joey Spacely's concert sales business.

INSTRUCTIONS

Complete Learning Task 2.

LEARNING TASK 2

In the example of Far Out Joey Spacely's concert sales business suppose that the following items make up the three elements of the basic equation.

Economic Resources

Cash	\$ 10 000
Land	4 000
Building	16 900
Cash Register	1 000
Furniture	3 000

The claims of creditors would include people, financial institutions, or businesses that advanced Far Out Joey Spacely money or extended his credit in the form of time payments. Suppose that the claims of the creditors were represented in the following figures.

Banks	\$ 3 000
Finance Company (Mortgage)	20 900
Other creditors (allowing time payments)	1 000

The claims of the owner would be represented by the owner's investment.

Far Out Joey Spacely's endowment policy \$ 10 000

BASIC EQUATION

Economic Resources = Claims of Creditors + Claims of Owner

\$ _____ = \$ _____ + \$ _____

EVALUATION

Check the back of this page to see if you had the answer correct.

PERFORMANCE OBJECTIVE 3

Given a list of items comprising the elements -- economic resources, claims of creditors, and claims of owner -- the student will write amounts to show that the basic equation is in balance.

INSTRUCTIONS

Complete Learning Task 3.

LEARNING TASK 3

In the following example fill in the amounts for economic resources, claims of creditors and claims of the owner. Your amounts should be different from the previous example to show that you understand how to use the equation. Total the economic resources, claims of creditors, and the claims of the owner to prove that the equation is in balance.

Remember not to include commas in your figures.

Eg. \$1 000 would be written instead of \$1,000.

Similarly, \$10 000 instead of \$10,000,etc.

INSTRUCTIONS:

Read and understand the following. It is a summation of pages 4 and 5 of the important items in your text. You will need to understand this before you can attempt learning task 4.

In the language of business, which is often referred to as accounting, the basic equation is stated as:

$$\text{ASSETS} = \text{LIABILITIES} + \text{OWNER'S EQUITY}$$

- Assets represent what the business owns and are economic resources.
- Liabilities are the debts of a business and represent the claims of creditors.
- Owner's Equity is the investment of the owner and is therefore the claim of the owner.

In the example of Far Out Joey Spacely's concert sales business the accounting equation would be presented in the following manner.

	ASSETS	=	LIABILITES	+	OWNER'S EQUITY
<u>or</u>	Economic	=	Claims of	+	Claims of
	Resources		Creditors		Owner
	\$34 900	=	\$24 900	+	\$10 000

Seven points about this equation are:

1. The accounting equation consists of three parts: assets, liabilities, and owner's equity.
2. Assets are shown on the left side of the equation, while liabilities and owner's equity appear on the right side of the equation.
3. The assets are the economic resources required to establish any business and represent what the business owns.

4. Liabilities are the claims of creditors against the business and represent the debts of a business.
5. Owner's equity is the claim the owner has against the assets of the business. It represents the owner's financial interest in the business.
6. In the order showing the right side of the equation, liabilities come before owner's equity because the claims of the creditors takes a precedent over the claims of the owner. For example, if the business were declared bankrupt and incapable of paying its debts, the creditors would have first claim over the sale of the assets.
7. Since the accounting equation has three elements, the knowledge of two elements would lead to the discovery of a third unknown element. For example, if A represents assets at \$40 000, and L represents liabilities at \$30 000, then the owner's equity or O.E. would be:

<u>A</u>	=	<u>L</u>	+	<u>O.E.</u>
\$40 000	=	\$30 000	+	?
O.E.	=	A	-	L
O.E.	=	\$40 000	-	\$30 000
O.E.	=	\$10 000		

You could also solve for Liabilities if you knew the owner's equity.

For example, using the above illustration L would be

<u>A</u>	=	<u>L</u>	+	<u>O.E.</u>
\$40 000		?	+	\$10 000
L	=	A	-	O.E.
L	=	\$40 000	-	\$10 000
L	=	\$30 000		

PERFORMANCE OBJECTIVE 4:

Given the accounting equation, $A = L + OE$ the student will solve for an unknown if he knows two of the three elements in the equation.

INSTRUCTIONS:

Complete Learning Task 4

LEARNING TASK 4

Using the equation $A = L + OE$ solve for the unknown in each case.

<u>A</u>	=	<u>L</u>	+	<u>OE</u>
21 000	=	7 000	+	_____
17 000	=	_____	+	12 000
_____	=	6 000	+	800
1 200	=	400	+	_____
220	=	110	+	_____
1 700	=	_____	+	1 620
11 111	=	_____	+	11 110
12 000	=	0	+	_____
_____	=	60	+	4 000
22 000	=	20 000	+	_____

EVALUATION:

Check your answer on the back of this page. If you did not have all the answers correct, check over your work, and complete the alternative task. If you had all correct then begin the next reading section.

Answers for Learning Task 4

$$\text{OE} = 14\ 000$$

$$\text{L} = 5\ 000$$

$$\text{A} = 6\ 800$$

$$\text{OE} = 800$$

$$\text{OE} = 110$$

$$\text{L} = 80$$

$$\text{L} = 1$$

$$\text{OE} = 12\ 000$$

$$\text{A} = 4\ 060$$

$$\text{OE} = 2\ 000$$

PERFORMANCE OBJECTIVE 4A:

Given the accounting equation $A = L + OE$ the student will solve for an unknown if he knows two of the three elements in the equation.

INSTRUCTIONS:

If you did not have all of the answers correct for Learning Task 4 complete Alternative Learning Task 4. If you had all of the answers correct in Learning Task 4 skip this exercise and begin the next reading section.

ALTERNATIVE LEARNING TASK 4:

Using the equation $A = L + OE$ solve for the unknown in each case.

<u>A</u>	=	<u>L</u>	+	<u>OE</u>
500	=	100	+	_____
4 000	=	_____	+	2 500
740	=	300	+	_____
_____	=	800	+	100
9 000	=	_____	+	6 200
4 800	=	21 000	+	_____
18 800	=	6 900	+	_____
_____	=	4 500	+	6 900
1 435	=	_____	+	700
3 890	=	0	+	_____

EVALUATION:

Check with your instructor to see if you scored 100%. If you did not, your instructor will prescribe remedial work for you so that you can master this objective.

INSTRUCTIONS:

Read and understand the following. It is a summation of pages 6 and 7 in your text. You will need to understand this before you can attempt Learning Task 5.

ASSETS

Assets are economic resources which are owned by a business. A business may have many kinds of assets. Assets may represent a number of individual items: cash, for example, includes currency, cheques, money orders received and bank deposits; furniture includes desks, chairs, tables; and office equipment may include typewriters, adding machines, calculators, copiers, duplicators, cash registers, and the like. In the example of Far Out Joey Spacely's concert sales business the assets were cash, office equipment (cash register), furniture, building and land.

One asset which has not been mentioned is accounts receivable. Accounts receivable represents the total amount that customers owe the business. Since Far Out Joey Spacely has just established a business, an account receivable cannot be acquired as a result of selling services. Suppose, however, that when Far Out Joey Spacely was setting up his business he purchased two cash registers at a cost of \$1 000 each. After purchasing the cash registers Far Out Joey Spacely realized that he only needed one cash register so he sold a cash register to Smooth Sailing Sam for \$1 000. Smooth Sailing Sam could not pay Far Out Joey Spacely immediately and agreed to pay for the cash register in 90 days. In this situation Far Out Joey Spacely has an

accounts receivable because it represents a claim against the customers property until Smooth Sailing Sam pays off his debt. Smooth Sailing Sam is a debtor as far as Far Out Joey Spacely is concerned because he owes money to the business. A more common application of an accounts receivable is through the selling of goods and services. The sales side of accounting will be explained later in this module. For the present remember that accounts receivable represents the amount debtors owe to the business.

Another type of receivable is notes receivable. A note receivable is a customer's written promise to pay a certain amount of money by a specified date. For example, if Smooth Sailing Sam were to write a note promising that he would pay Far Out Joey Spacely \$1 000 in 90 days for the cash register, then a notes receivable rather than an accounts receivable would represent an asset for Far Out Joey Spacely's concert business. If a business has both a notes receivable and an accounts receivable these are both listed as assets of the business.

LIABILITIES

Liabilities are the debts of a business. Two common debts are bank loan payable and accounts payable. In Far Out Joey Spacely's business the amount of the bank loan is \$3 000 and the amount of the accounts payable is \$1 000. Accounts payable is the amount owed to creditors who gave credit when the business purchased goods or acquired services. In Far Out Joey Spacely's business he purchased a \$1 000 cash register from the Overabundant Supply Company agreeing to pay them in 90 days. The Overabundant Supply Company represents a creditor for Far Out Joey Spacely's business. A creditor is the person or business to whom a sum of money is owed.

Far Out Joey Spacely has a long term liability in the form of a mortgage payable. The payment of Rolling Realty for the mortgage represents a long term debt. Unlike an accounts payable which agrees that payment will be made within a short period (anything less than one year), the debt contracted with Rolling Realty is for a twenty year period. Rolling Realty is, therefore, a creditor of Far Out Joey Spacely's concert sales business.

OWNER'S EQUITY

Owner's equity represents the claim that Far Out Joey Spacely has against the assets of the business. This claim, like the claims of creditors is not against any particular asset but against the assets in general.

PERFORMANCE OBJECTIVE 5:

Given a review exercise the student will:

- (a) write the appropriate term or terms in the blanks;
- (b) identify cash items; and
- (c) classify items as assets, liabilities, and owners equity, and determine which side of the equation each element will be on.

INSTRUCTIONS:

Complete Learning Task 5.

LEARNING TASK 5:*

Part 1: Complete the following statements by filling in the appropriate word or words.

1. Accounting is based on three elements: _____
_____ and _____.
2. Anything of monetary value that a business owns is a(n)
_____.
3. A written promise of a customer to pay the business a sum of money
at a future date is called a(n) _____.
4. Amounts to be collected from a customer to whom goods or services
were sold on credit are called _____.
5. Currency, coins, cheques and deposits in the bank are referred
to by the term _____.
6. The term office equipment refers to such items as _____
_____.
7. Indicate which of the following items would be classified as
cash in business use. Place a check mark next to those
items.

Coins	Cheques awaiting deposit
Balance on deposit in the bank	Currency
Accounts Receivable	Unpaid bills
Money Order	
8. Any debt that a business owes is a _____.
9. The business to whom the debt is owed is called a
_____.

*This exercise was taken from a series of questions in Individualized Learning Guides for Elements of Financial Records. Written by Weaver et. al (New York: McGraw-Hill, 1977), pp. 6 - 8.

10. Until the debt is paid, the creditor has a legal claim against the _____ of the business.
11. Amounts owed to creditors for goods and services purchased on credit are called _____.
12. Amounts borrowed from the bank are called _____.
13. A written promise to pay a creditor a certain sum of money in the future is called a(n) _____.
14. The claims of the creditor against the assets of the business are called _____.
15. The total claims against the assets of the business are always equal to _____.
16. The two sides of the accounting equation must always be _____.
17. Until a liability is paid, the creditor has a claim against the _____ of the business.
18. If no liabilities exist, the owner's equity equals the total _____.
19. There is always a relationship between assets and the _____ against the assets. The relationship is expressed by the _____.

Part 2: If assets are what the business owns, and liabilities are what the business owes, and owner's equity is the owner's investment, complete the exercise:

- (a) classify each item listed below as an Asset (A), Liability (L), Owner's Equity (OE).

(b) determine which side of the accounting equation each element would appear, i.e. either the left side (L.S.) or the right side (R.S.)

	<u>A</u>	<u>L</u>	<u>OE</u>	<u>LS</u>	<u>RS</u>
Eg. Amount owed to a company for purchasing goods on time	_____	_____✓	_____	_____	_____✓
COMPLETE THE FOLLOWING LIKE THE EXAMPLE ABOVE					
Land	_____	_____	_____	_____	_____
Equipment	_____	_____	_____	_____	_____
Cash in Bank	_____	_____	_____	_____	_____
Furniture	_____	_____	_____	_____	_____
Investment by Owner	_____	_____	_____	_____	_____
Bank Loan Payable	_____	_____	_____	_____	_____
Written promise to pay a customer	_____	_____	_____	_____	_____
Building	_____	_____	_____	_____	_____
Mortgage Payable	_____	_____	_____	_____	_____

EVALUATION:

Check with your instructor and correct your errors. If you did not score 80%, your instructor will prescribe remedial exercises so that you can master the objective contained in this task.

TOPIC 2: THE BALANCE SHEET

INSTRUCTIONS:

Read pages 10 to 17 in your text.

Read the notes in the module on Introducing the Balance Sheet and Interpreting the Balance. These notes are a summation of the important points in your text. You will need to understand the concepts in these notes before you attempt the Learning Task exercises in this module.

Introducing the Balance Sheet

One of the most important functions in accounting is the preparation of financial statements. These statements are of interest to the owner and to outside parties such as creditors, and perhaps government departments. You already learned the accounting equation, $A = L + OE$, and you know some of the items which make up assets, like cash, accounts receivable and equipment. Similarly, you learned that liabilities consist of accounts payable and mortgage payable, and that the amount for owner's equity is determined by the owner's investment.

The purpose of this topic is to present a financial statement which will report the assets, liabilities and owner's equity for a particular business. This financial statement, which you will learn about is the balance sheet. To illustrate the features of the balance sheet, Far Out Joey Spacely's concert sales business will be used. Some of the amounts and items have been changed and include concepts previously described such as accounts receivable, accounts payable, and mortgage payable. Other changes will be described as they are developed.

A list of Assets, Liabilities, and Owner's Equity for Far Out Joey Spacely's concert sales business are as follows:

Assets:	Cash	\$ 9 000
	Accounts Receivable:	
	Smooth Sailing Sam	1 000
	Land	4 000
	Building	16 900
	Office Equipment	1 000
	Furniture	<u>3 000</u>
		<u>\$34 900</u>
Liabilities:	Bank Loan Payable	\$ 3 000
	Accounts Payable:	
	Furry Furniture Company	600
	Tacky Tape Supplies	400
	Mortgage Payable:	
	Rolling Realty	<u>20 900</u>
		<u>\$24 900</u>
Owner's Equity:	Far Out Joey Spacely, Capital	\$10 000

A balance sheet for Far Out Joey Spacely's business, Cool Cats' Concert Centre, has been prepared for April 30, 1981. Learn the organization of the balance sheet followed by the notes on how to interpret the balance sheet.

Cool Cats' Concert Centre
Balance Sheet
As at April 30, 1981

Assets		Liabilities	
Cash	\$ 9 000	Bank Loan Payable	\$ 3 000
Accounts Receivable:		Accounts Payable:	
Smooth Sailing Sam	1 000	Furry Furniture	
Land	4 000	Company	\$600
Building	16 900	Tacky Tape	
Office Equipment	1 000	Supplies	400
Furniture	3 000	Mortgage Payable (20 yr.)	1 000
		Rolling Realty Co.	20 900
			<u>\$24 900</u>
		Owner's Equity	
		Far Out Joey Spacely, Capital	
		10 000	
Total	<u>\$34 900</u>	Total	<u>\$34 900</u>

Interpreting the Balance Sheet

A balance sheet is divided into two parts -- the heading, and the body. The heading answers three questions: Who? What? and When?

The name of the business, Cool Cats' Concert Centre, represents an accounting entity. This means that the business enterprise is separate from the owner. For example, when Far Out Joey Spacely invested money into the business from his endowment policy, only \$10 000 was recorded. The balance sheet is not concerned with a personal saving account which Far Out Joey Spacely might have, nor is it concerned with other personal assets such as his car, furniture or other items. For accounting purposes, the individual and the business enterprise are treated as separate entities. Only the business, Cool Cats' Concert Centre, represents an accounting entity.

The balance sheet tells the reader what the business owns in the way of economic resources (assets) and lists the claims against the assets in the form of liabilities and owner's equity. Assets, liabilities, and owner's equity are reported as at a specific date. The balance sheet

shows the financial position of a business at a particular point in time. This is contrasted to the income statement (which will be explained later) which shows the financial position of a business over a period of time. For the balance sheet of Cool Cats' Concert Centre the assets, totalling \$34 900, are divided between two groups: creditors to the extent of \$24 900 and the owner, Far Out Joey Spacely, who has a claim of \$10 000.

The balance sheet provides the reader with a view of the firm's financial ability to pay its debts. For instance, Cool Cats' Concert Centre is \$3 000 in debt to the bank and \$1 000 in debt to his creditors, Furry Furniture Company, and Tacky Tape Supplies. There is \$9 000 in cash and an Accounts Receivable for \$1 000. By comparing the available assets against the debts of the business the reader can conclude that Far Out Joey Spacely could pay his creditors but would have some difficulty paying off his mortgage if he desired to go out of business.

Land, building, office equipment, and furniture, are not intended for resale. Thus, the balance sheet provides the reader with a view of the firm's ability to carry out its daily business operations.

A limitation of the balance sheet is that it does not show how much money (or profit) was made over a period in time. The balance sheet does not indicate the specific assets that creditors and the owner have a specific claim to. Capital, simply means the owner's claim against the assets of the business through the owner's original investment.

Another limitation of the balance sheet is that the current market value of assets is not reported on the balance sheet. There is little doubt that the cost for equipment, furniture, building and land will increase over time; however, the balance sheet reports the assets at cost not at a replacement value.

PERFORMANCE OBJECTIVE 6:

Given the balance sheet for the Tortoise and Hare Delivery Service, student will fill in the blanks concerning questions about the organization of the balance sheet.

INSTRUCTIONS:

Study the Balance Sheet for the Tortoise and Hare Delivery Service and complete Learning Task 6.

The Tortoise and Hare Delivery Service
Balance Sheet
As at December 31, 1980

Assets		Liabilities	
Cash	\$ 5 000	Bank Loan Payable	\$ 4 000
Accounts Receivable:		Accounts Payable:	
Dashing Joe Runner	3 000	Fast Freewheeling Freddie	3 000
Land	19 000	Mortgage Payable (20 yr.)	
Building	11 000	Running Realty	13 000
Furniture	9 000	Total Liabilities	\$20 000
Office Equipment	4 000		
		Owner's Equity	
		Quick Foot Francis, Capital	31 000
Total	<u>\$51 000</u>	Total	<u>\$51 000</u>

LEARNING TASK 6*

In the space provided, answer the following questions which relate to the above balance sheet.

- Who is the owner of the business? _____
- Does the owner represent an accounting entity? _____. Why or Why not? _____

*The questions for this learning task were taken from Kaluza's text, p. 18, Problem 3-1

3. What is the claim of the creditor against the economic resources of the business? _____.
4. Is the business in a strong financial position to pay its debts? _____.
5. Does the balance sheet report how much profit was made by the business? _____.
6. Why are the words "as at" written before the date? _____.
7. What does the word capital mean after the name Quick Foot Francis? _____.
8. Is there a debtor? _____ If so, who? _____.

EVALUATION:

Hand this exercise to your instructor for marking.

- _____ Congratulations, you met the criteria of this task (2 mistakes or less). Begin reading the next section - Preparing a Balance Sheet.
- _____ You did not meet the criteria of 2 mistakes or less for this exercise. Do alternative task 6 so that you can achieve the objective of the exercise.

PERFORMANCE OBJECTIVE 6A:

Given the balance sheet for Vanish Car Wash, the student will fill in the blanks concerning questions about the organization of the balance sheet.

INSTRUCTIONS

Study the balance sheet for Vanish Car Wash and complete Alternative Learning Task 6,

Vanish Car Wash
Balance Sheet
As at April 30, 1981

Assets		Liabilities	
Cash	\$ 750	Accounts Payable:	
Supplies	150	Polish Plus Company	\$ 500
Equipment	3 100	Owner's Equity	
		Bob Buffer, Capital	3 500
Total	<u>\$ 4 000</u>		<u>\$ 4 000</u>

ALTERNATIVE LEARNING TASK 6*

In the space provided, answer the following questions which relate to the above balance sheet.

1. Who is the owner of the business? _____.
2. What is the claim of the creditors against the assets of the business?
_____.
3. Is there a debtor? _____. If so, who? _____.
4. Briefly comment about the financial strength of the business.

_____.

*The questions for this learning task were taken from Kaluza's text, p. 18, Problem 3-2.

5. Does the owner represent an accounting entity? _____.

Explain: _____

_____.

EVALUATION:

Hand in this exercise to your instructor for marking.

_____ Congratulations, you met the criteria of this task (2 mistakes or less)

Begin reading the next section - Preparing the Balance Sheet.

_____ You did not meet the criteria of 2 mistakes or less for this exercise.

See your instructor. He will prescribe a remedial exercise so that
you can master this objective.

The body is divided into two parts: the left hand side and the right side. On the left side the assets are listed in order of liquidity which refers to the ease in which assets can be converted into cash. This is why cash is always placed first. Accounts receivable, giving the name of the customer or the debtor, usually follows. Customers generally pay their debts within a short time period. i.e. less than one year. The more permanent assets are listed after accounts receivable. Land is the most permanent asset because it does not depreciate. Building, Office Equipment, and Furniture are needed to run the business and would only be sold if the business went bankrupt (i.e. - if Far Out Joey decided to sell his business before he lost all of his investment). The word Assets is centred in the left column and the individual assets are listed at the left hand column directly underneath. The amount of each individual asset is extended to the money column. The line which separates the thousands and the hundreds column represents the space according to S. I. Metric Units. Therefore, no comma is used to separate the thousand and the hundreds column.

After the accounts receivable, the debtor is identified. If there were more than one debtor, each would be identified by name and the amounts would be totalled and then extended to the money column.

The right side of the equation lists the liabilities and owner's equity. The liabilities are listed in the order that payment is due. This is similar to the assets which lists according to the order of liquidity except that money is not going to be coming into the business as it would with accounts receivable but money will be going out of the business when the debts become due. Accounts Payable is listed before Mortgage Payable

INSTRUCTIONS:

Read the notes in the module on Preparing the Balance Sheet. These notes represent a summation of the important points in your text (pages 10 to 14). You will need to understand the concepts in these notes before you can attempt the Learning Task exercises in this module.

Preparing the Balance Sheet

Balance sheets are usually typed like the previous examples. Occasionally they are written on columnar paper and specific procedures are followed. On page 34 you will find the balance sheet for Cool Cats' Concert Centre prepared on columnar paper. This balance sheet is identical to the balance sheet previously prepared on page 25 except that it is written rather than typed. In the example on page 34 the lines have been numbered so that you can follow the forthcoming directions. When you prepare a written balance sheet you would not number the lines. If you were to prepare a written balance sheet for Cool Cats' Concert Centre it would look like example B on page 35. Therefore, the numbered lines are only for convenience so that you can refer to them while the directions for preparing a balance sheet are being described.

The Balance Sheet for Cool Cats' Concert Centre is divided into two parts; the heading and the body. The heading is centred and has the following features:

- the name of the business is centred on line 1
- the name of the statement is centred on line 2
- the words "as at" precede the date which is also centred, on line 3.

because the two creditors, Furry Furniture Company and Tacky Tape Supplies will be paid off before Rolling Realty Company. The bank loan payable is the first liability listed because regular monthly payments are made. This is unlike accounts payable who allow credit up to 30, 60, or 90 days.

In the final section, owner's equity, the name of the owner is written. After his or her name the word Capital is then written which shows the owner's investment. Liabilities and Owner's Equity are centred and the individual liabilities and capital items listed directly underneath these headings to the far left of the right side of the body. No dollar signs are used on column paper.

EXAMPLE A

Cool Cats' Concert Centre

Balance Sheet

As at April 30, 1981.

Assets	Liabilities	
Cash	Bank Loan Payable	300000
Accounts Receivable:	Accounts Payable:	
Smooth Sailing Suvu	Ferry Furniture Co. 600.00	
Land	Tacky Tape Supplies 4000	100000
Building	Mortgage Payable: (20 yrs)	
Office Equipment	Rolling Realty	2090000
Furniture	Total Liabilities	2490000
	Owner's Equity	
	For Out Joey Spacely,	
	Capital	1000000
Total	Total	3490000

EXAMPLE B:
NO LINE NUMBERS
AS IN EXAMPLE

Cool Cats' Concert Centre
Balance Sheet

A.

As at April 30, 1981

Assets			Liabilities	
Cash	900000		Bank loan Payable	300000
Accounts Receivable:			Accounts Payable:	
Small Seating Area	100000		Ferry Furniture	
Land	400000		Co.	60000
Building	1690000		Truck Tape	
Office Equipment	100000		Supplies	40000
Furniture	300000		Mortgage Payable (20 yr)	
			Rolling Realty	2090000
			Total Liabilities	2490000
			Owner's Equity:	
			For Out going Equity, Capital	1000000
Total	3490000		Total	3490000

PERFORMANCE OBJECTIVE 7:

Given a list of assets and liabilities the student will determine the capital for Quick Foot Francis, and prepare a balance sheet for the Tortoise and Hare Delivery Service as at December 31, 1980.

INSTRUCTIONS:

Complete Learning Task 7.

LEARNING TASK 7:

Prepare a Balance Sheet for the Tortoise and Hare Delivery Service as at December 31, 1980 on columnar paper. (Use columnar paper on page 38)

Assets: Cash - \$500; Accounts Receivable: Dashing Joe Runner - \$3 000;
Land - \$9 000; Building - \$11 000; Furniture - \$9 000.

Liabilities: Bank Loan Payable - \$4 000; Accounts Payable: Fast Freewheeling
Freddie - \$3 000; Mortgage Payable (20 years): Running
Realty - \$13 000.

Owner's Equity: Quick Foot Francis, Capital ?

Use the check list once you have completed the learning task.

1. Are there three parts in your heading: Who? What? When? _____
2. Did you use a ruler to make all rulings? _____
3. Are the assets on the left side and owners Equity on the right side? _____
4. Did you leave blank lines between the liabilities and owner's
equity sections? _____

5. Are your totals the same on both sides of the balance sheet? _____

EVALUATION:

Once you have completed the exercise have your instructor mark it. You need to understand all of the concepts and principles of preparing a balance sheet before you attempt Learning Task 8.

PERFORMANCE OBJECTIVE 8:

Given a list of assets and liabilities the student will determine the capital for Marvin Murray and prepare a balance sheet for Murray "Mags" Marvin Auto Body Service as at June 30, 1981.

INSTRUCTIONS:

Complete Learning Task 8.

LEARNING TASK 8*

Prepare a Balance Sheet for Murray "Mags" Marvin Auto Body Service as at June 30, 1981 on columnar paper. (Use columnar paper on page 40)

- Has \$2 450 in cash
- Owns office equipment that cost \$6 200
- Owns office machine that cost \$2 700
- Owns supplies that cost \$10 000
- Owes creditors: Ron Rally - \$2 000; Cameron Cam - \$1 200
- Customer (Orest Overhead) owes him \$300

*Amounts and check list items were taken from Individualized Learning Guides for Elements of Financial Records. Written by Weaver et. al, p.9, p. 15.

- Owes Bank \$1 500
- Investment of owner, Marvin Murray ?

Use this check list once you have completed task 8.

1. Are there three parts in your heading: Who? What? When? _____
2. Did you use a ruler to make all rulings? _____
3. Are the assets on the left side and liabilities and owner's equity
on the right side? _____
4. Did you leave blank lines between the liabilities and owner's
equity sections? _____
5. Are your totals the same on both sides of the balance sheet? _____

EVALUATION

Hand this exercise to your instructor for marking.

_____ Congratulations, you met the criteria of this task - 80%.

Begin the next topic.

_____ You did not meet the criteria of 80%. Your instructor will give
you an additional exercise so that you can master this objective.

TOPIC 3: ANALYZING CHANGES IN THE ACCOUNTING EQUATION

INSTRUCTIONS:

Read pages 22 to 26 in your text.

Read the notes on the module which illustrate the changes in the accounting equation.

In these notes the Case of Far Out Joey Spacely's business, Cool Cats' Concert Centre is used to illustrate how business transactions change one or more of the elements in the accounting equation.*

Business Transactions for Cool Cats' Concert Centre to Illustrate Changes in the Accounting Equation

Page 42 lists the assets, liabilities and owner's equity sections for Cool Cats' Concert Centre. The assets, liabilities and owner's equity elements and the dollar values are exactly the same as the ones previously listed on page 25 except that land, building and mortgage payable have been deleted because the assets land and building were only used to show that these two assets are separated for accounting purposes. The mortgage covered the purchase of the land and building. In all probability a small business like Cool Cats' Concert Centre would rent office space rather than purchase a building. The letters A, B, C, D, E, F, and G, on the left side on pages 42 and 43 represent the various business transaction which change one or more elements of the accounting equation.

*"A business transaction is a financial event expressed in dollar terms that affects one or more elements of the accounting equation" Kaluza, Accounting: A Systems Approach, (1976), p. 22.

BUSINESS TRANSACTIONS FOR COOL CATS' CONCERT CENTRE TO ILLUSTRATE CHANGES IN THE ACCOUNTING EQUATION

ASSETS				LIABILITIES		OWNER'S EQUITY	
Cash	Accounts Receivable	Office Equipment	Furniture	Bank Loan Payable	Accounts Payable	Far Out Joey Spacely, Capital	
9 000	+ 1 000	+ 1 000	+ 3 000	3 000	+ 1 000	+ 10 000	
			14 000		4 000	+ 10 000	
Transaction A							
9 000	+ 1 000	+ 1 000	+ 3 000	3 000	+ 1 000	+ 10 000	
+1 000	- 1 000						
10 000	+ 0	+ 1 000	+ 3 000	3 000	+ 1 000	+ 10 000	
			14 000		4 000	+ 10 000	
Transaction B							
10 000	+ 0	+ 1 000	+ 3 000	3 000	+ 1 000	+ 10 000	
-1 000		+ 1 000					
9 000	+ 0	+ 2 000	+ 3 000	3 000	+ 1 000	+ 10 000	
			14 000		4 000	+ 10 000	
Transaction C							
9 000	+ 0	+ 2 000	+ 3 000	3 000	+ 1 000	+ 10 000	
9 000	+ 0	+ 2 000	+ 1 500		+ 1 500		
			4 500	3 000	+ 2 500	+ 10 000	
			15 500		5 500	+ 10 000	
Transaction D							
9 000	+ 0	+ 2 000	+ 4 500	3 000	+ 2 500	+ 10 000	
9 000	+ 0	+ 2 000	+ 4 000		-500		
			15 000	3 000	+ 2 000	+ 10 000	
					5 000	+ 10 000	

See next page for Transactions E, F, and G

BUSINESS TRANSACTIONS FOR COOL CATS' CONCERT CENTRE TO ILLUSTRATE CHANGES IN THE ACCOUNTING EQUATION (Continued)

	Cash	Accounts Receivable	Office Equipment	Furniture	Bank Loan Payable	Accounts Payable	Far Out Joey Spacely, Capital
Transactions	9 000 +	0 +	2 000 +	4 000 +	3 000 +	2 500 +	10 000 +
			15 000		5 000		10 000
Transaction E	9 000 +	0 +	2 000 +	4 000 +	3 000 +	2 000 +	10 000 +
	-600					-600	
	8 400 +	0 +	2 000 +	4 000 +	3 000 +	1 400 +	10 000 +
			14 400		4 400		10 000
Transaction F	8 400 +	0 +	2 000 +	4 000 +	3 000 +	1 400 +	10 000 +
	+3 000						+3 000
	11 400 +	0 +	2 000 +	4 000 +	3 000 +	1 400 +	13 000 +
			17 400		4 400		13 000
Transaction G	11 400 +	0 +	2 000 +	4 000 +	3 000 +	1 400 +	13 000 +
	-1 000						-1 000
	10 400 +	0 +	2 000 +	4 000 +	3 000 +	1 400 +	12 000 +
			16 400		4 400		12 000

Follow the description and analysis for each transaction and observe how the accounting equation is still in balance after each transaction.

Transaction A: On May 1, 1981 Cool Cats' Concert Centre receives a cheque for \$1 000 from Smooth Sailing Sam, who had purchased a cash register on credit.

Analysis: The transaction has affected only one of the three elements. The asset, cash, increased by \$1 000 because the business now has more money. At the same time, Accounts Receivable decreases by \$1 000 because the customer, Smooth Sailing Sam, no longer owes money to Cool Cats' Concert Centre.

This transaction involves the exchange of one asset for another for the same amount. Since one asset has been replaced by another for the same amount, there has been no change in the assets total and the equation is still in balance.

Transaction B: On May 2, 1981 Cool Cats' Concert Centre buys additional office equipment for \$1 000 from O'Really Machines Ltd., issuing a cheque in full payment.

Analysis: When the cheque is issued only one element, assets, is affected. As a result of this transaction the asset office equipment increases by \$1 000 because the business now owns more office equipment. At the same time, cash decreases by \$1 000 because the business has \$1 000 less in its bank account.

Like transaction A, transaction B involves the exchange of one asset for another and since both of the amounts are exactly the same the accounting equation remains balanced.

Transaction C: On May 5, 1981 Cool Cats' Concert Centre buys additional furniture from Friendly Furniture Company for \$1 500 on

credit agreeing to pay Friendly Furniture Company the full \$1 500 in 60 days.

Analysis: Two elements of the accounting equation are affected by this transaction. The asset furniture increases by \$1 500 because the business now owns more furniture. On the right side of the equation the liability accounts payable increases by \$1 500 because the concert sales business owes more money to its creditors. Or, to state it another way, the claims of creditors against the total assets of the business has increased by \$1 500.

The left side of the equation and the right side of the equation have increased by the same amount \$1 500 as a result of this transaction. The assets are now \$20 600 instead of \$19 100 and the liabilities are now \$2 500 rather than \$1 500 making the total liabilities and owner's equity also equal to \$20 600. Note that there is no change in the owner's equity amount. Since the left side of the equation increases by the same amount as the right side, the accounting equation is in balance.

Transaction D: On May 7, 1981 Cool Cats' Concert Centre returns a piece of furniture costing \$500 to Friendly Furniture Company because it arrived in a damaged condition. The creditor has accepted the return of the damaged furniture.

Analysis: When a business returns an asset (furniture) to the creditor, it is important to recognize that Cash is not affected because no cash was paid either by the business which bought the furniture or the business which sold the furniture. In this transaction two fundamental elements, assets and liabilities are affected. The asset, furniture, decreases by \$500 because the business owns less furniture and the

liability, accounts payable, also decreases by \$500 because the business owes less money to its creditor.

Transaction E: On May 8, 1981 Cool Cats' Concert Centre writes a cheque for \$600 to Furry Furniture Company. As you may recall Furry Furniture Company held a claim against the assets of Cool Cats' Concert Centre. This payment discharges the claim of Furry Furniture Company.

Analysis: The two elements, assets and liabilities, are affected by this transaction. The asset, cash, decreases by \$600 because the business has less money in the bank. The liability, accounts payable, also decreases by \$600 because a creditor no longer has a claim against the assets of the business.

The left and right sides of the accounting equation are still in balance despite the fact that the owner's equity remained the same during this transaction.

Transaction F: On May 12, 1981 Far Out Joey Spacely decides to increase the investment in his business by withdrawing \$3 000 from his personal chequing account and depositing the cash into the business' chequing account.

Analysis: Two elements are affected by this transaction --- assets, and owner's equity. Unlike the previous transactions which affected only the two elements, assets and liabilities, this transaction involves a third element, owner's equity. Cash increases by \$3 000 because the business has more money and similarly, the right side of the equation, Far Out Joey Spacely, Capital increases by \$3 000 because the owner has increased his investment in the business. Thus the owner has increased his claim against the total assets of the business through an additional investment. Since assets increased in proportion to owner's equity the accounting equation is still in balance.

Transaction G: On May 29, 1981 Far Out Joey Spacely withdraws permanently \$1 000 from Cool Cats' Concert Centre's bank account and deposits it in his personal savings account.

Analysis: The owner, as a sole proprietor (one owner) of the business is entitled to withdraw assets from his business for his own use. Two elements, assets and liabilities, are affected by this transaction. In this transaction cash decreases by \$1 000 because the business has less money. Similarly, capital decreases by \$1 000 because the owner has \$1 000 less of a claim against the assets of the business. The accounting equation is still in balance because the decrease in total assets was offset by the same decrease in owner's equity and liabilities remained at the same amount.

PERFORMANCE OBJECTIVE 9:

Given a procedure for analyzing changes in the accounting equation the student will:

- (a) summarize transactions A to G for Cool Cats' concert Centre for Cool Cats' Concert Centre and evaluate his or her performance by comparing his or her solution with a description and analysis of the transactions which were explained earlier; and
- (b) prepare a balance sheet on column paper for Cool Cat's Concert Centre as at May 31, 1981.

INSTRUCTIONS:

Complete Learning Task 9. There are two parts to Learning Task 9.

LEARNING TASK 9:

Examine the Summary of Transactions A to G for Cool Cats' Concert Centre. There are three principles which must be remembered when analyzing business transactions: (1) each transaction effects at least two items; (2) the elements are expressed in dollar amounts; and (3) the effects of the transaction leave the accounting equation in balance.

Write out a description and analysis for Transactions A to G from the Summary

Prepare a Balance Sheet for Cool Cat's Concert Centre as at May 31, 1981.

EVALUATION

For the summary of transactions exercise check your analysis with the analysis previously described in the module. Make sure you understand what errors you may have made or why you made them. If you have any difficulty ask your instructor to clarify any vague points which you may have. When you have completed the Balance Sheet hand it to your instructor for marking. Your instructor will determine whether or not you have met an 80% criteria in the preparation of the Balance Sheet.

SUMMARY OF TRANSACTIONS A TO G FOR COOL CATS' CONCERT CENTRE

	ASSETS			=	LIABILITIES		+	OWNER'S EQUITY	
	Cash	Accounts Receivable	Office Equipment		Bank Loan Payable	Accounts Payable		Far Out Spacely, Capital	Joey Spacely, Capital
Balance	9 000	+	1 000	+	1 000	+	10 000		
Transaction A	+1 000	-1 000							
Balance	10 000	+	0	+	1 000	+	10 000		
Transaction B	-1 000		+1 000						
Balance	9 000	+	0	+	2 000	+	3 000	+	10 000
Transaction C						+1 500			
Balance	9 000	+	0	+	2 000	+	3 000	+	10 000
Transaction D						-500			
Balance	9 000	+	0	+	2 000	+	3 000	+	10 000
Transaction E	-600					-600			
Balance	8 400	+	0	+	2 000	+	3 000	+	10 000
Transaction F	3 000								3 000
Balance	11 400	+	0	+	2 000	+	3 000	+	13 000
Transaction G	-1 000								-1 000
Balance	10 400	+	0	+	2 000	+	3 000	+	12 000

PERFORMANCE OBJECTIVE 10:

Given the initial balances for Cash, Accounts Receivable, Equipment, Bank Loan Payable, Accounts Payable, Mary Best, Capital, and an analysis of business transactions 1 and 2 the student will:

- (a) complete transactions 3, 4, 5, 6, and 7; and
- (b) prepare a Balance Sheet for Office Services as at May 31, 1981.

INSTRUCTIONS:

Complete Learning Task 10 on the forms provided in the module.

LEARNING TASK 10:

Transactions 1 and 2 have been analyzed for Office Services. Complete the remainder of the exercise by filling in the correct amounts in the correct items for each accounting element.

Prepare a balance sheet for Mary Best's business, Office Services, as at May 31, 1981.

EVALUATION:

Your instructor will mark your solution. Make sure you correct all of your errors before proceeding to Learning Task 11. Your instructor will go over some of the material if you did not achieve 80% in this task

Transaction (1): Received a cheque from Roy Berry, a customer, in payment of his debt owing to the business. Cheque amount is for \$500.

ASSETS			LIABILITIES		OWNER'S EQUITY
ACCOUNTS			BANK LOAN	ACCOUNTS PAYABLE	MARY BEST, CAPITAL
CASH	RECEIVABLE	EQUIPMENT	PAYABLE		
\$10 000	+	\$1 000	+	\$2 000	+
		\$13 000			\$20 000
		=			
(1)	+500	-500			
	\$10 500	+	\$2 000	+	\$20 000
		\$ 500			
		+			
		\$13 000			
		=			
		\$24 000		\$4 000	+
					\$20 000

ANALYSIS: 1 ONLY ONE OF THE THREE ELEMENTS--ASSETS--IS AFFECTED BY THE TRANSACTION.
2 THE ASSET CASH INCREASES BY \$500 BECAUSE THE BUSINESS NOW HAS MORE MONEY.
3 THE ASSET ACCOUNTS RECEIVABLE DECREASES BY \$500 BECAUSE THE CUSTOMER NO LONGER OWES ANY MONEY TO THE BUSINESS.
4 THE RESULT IS AN EXCHANGE OF ONE ASSET FOR ANOTHER OF THE SAME DOLLAR AMOUNT.

5 CONCLUSION: THERE IS NO CHANGE IN THE AMOUNT OF THE TOTAL ASSETS; THEREFORE, THE EQUATION IS STILL IN BALANCE.

Transactions:	ASSETS			EQUAL	LIABILITIES		Plus OWNER'S EQUITY
	CASH	ACCTS REC.	EQUIPMENT		BANK LOAN PAYABLE	ACCTS PAYABLE	
(2) Paid \$ 500 cash to acquire additional equipment	\$ 10 500 - 500	+ 500	+ 13 000 + 500	=	2 000	+ 2 000	+ 20 000
(3) Bought additional equipment costing \$ 500 from Office Specialty on 60 days credit	\$ 10 000	+ 500	+ 13 500	=	2 000	+ 2 000	+ 20 000
(4) Returned one piece of equipment costing \$ 100 of Office Specialty because equipment arrived in a damaged condition							

-240-

	CASH	ACCTS REC.	EQUIPMENT		BANK LOAN PAYABLE	ACCOUNTS PAYABLE	MARY BEST, CAPITAL
(5) Issued cheque for \$ 1 000 to J. Woodward Co., a creditor							
(6) Mary Best, the owner invested additional \$ 6 000 cash							
(7) Mary Best, withdrew \$ 1 000 from the business							
Kaluza, tran							

[illegible]

PERFORMANCE OBJECTIVE 11:

Given four transactions the student will fill in the blanks with the correct amount for the appropriate element(s) in the accounting equation.

INSTRUCTIONS

Open your textbook to page 28 and complete Learning Task 11.

LEARNING TASK 11:

Complete problem 1-4 from you text directly in the module. Paper is provided for this problem on the next page.

EVALUATION:

_____ Congratulations you had all of the problem correct. Continue with Learning Task 12.

_____ You did not have a perfect score on this exercise. See your instructor. He/She will prescribe remedial work so that you can master this objective.

	Cash		Accounts Receivable		Furniture		Accts Payable		Carl Case, Capital
Beginning Balance	\$ 6 000	+	\$ 500	+	\$ 1 500	=	\$ 600	+	\$ 7 400
Trans. a.	_____		_____		_____		_____		_____
New Balance	\$ _____	+	\$ _____	+	\$ _____	=	\$ _____	+	\$ _____
Trans. b.	_____		_____		_____		_____		_____
New Balance	\$ _____	+	_____	+	_____	=	_____	+	_____
Trans. c.	_____		_____		_____		_____		_____
New Balance	\$ _____	+	\$ _____	+	\$ _____	=	\$ _____	+	\$ _____
Trans. d.	_____		_____		_____		_____		_____
New Balance	\$ _____	+	\$ _____	+	\$ _____	=	\$ _____	+	\$ _____

PROVE THE EQUATION

ASSETS

= LIABILITIES + OWNER'S EQUITY

_____ = \$ _____ + \$ _____

PERFORMANCE OBJECTIVE 12:

Given 11 business transactions and the appropriate forms the student will:

- (a) analyze and record the impact of each transaction on the accounting equation;
- (b) after recording the changes brought about by the 11 transactions, total the equation to prove its equality; and
- (c) prepare a balance sheet for Radio Station CHJK as at November 30, 1980.

INSTRUCTIONS:

Open your textbook to page 28 and complete Learning Task 12.

LEARNING TASK 12

Complete problem 1-7 parts (a), (b), (c), from your text directly in the module. Paper is provided for this problem on the next two pages.

EVALUATION:

_____ Congratulations you met the criteria of 80%. You have now completed this topic. Begin Topic 4: The Expanded Equation.

_____ You did not meet the criteria of 80%. Make your corrections and see your instructor who will prescribe remedial work so that you can accomplish this objective.

A blank ledger page with a grid of columns and rows. The page is divided into a header section at the top and a main body section below. The header section has 10 columns, and the main body section has 10 columns. The page is oriented vertically.

TOPIC 4: THE EXPANDED EQUATION

INSTRUCTIONS:

Read pages 30 to 36 in your text.

Read the following notes in the module which illustrate:

- (a) a brief review of accounting equation transactions;
- (b) definitions of revenue, expense, net income and net loss; and
- (c) changes in the expanded equation as a result of revenue and expense transactions.

Review of Accounting Equation Transactions

The business transactions presented so far have affected one or more of the elements of the accounting equation. The transactions which have affected owner's equity concern capital transactions increasing or decreasing the owner's investment in the business. The capital of the business increases if the owner invests cash or other assets in the business, and it decreases if the owner withdraws assets from the business. Although these transactions occur, they do not represent the major change in owner's equity. The transactions which regularly change owner's equity are revenue and expense transactions. These transactions are concerned with the daily operations of the business and determine if the business was profitable or suffered a loss.

Definitions of Revenue, Expense, Net Income, and Net Loss

Although these definitions will become more apparent after examining the effect of revenue and expense transactions on the expanded equation a few definitions should be kept in mind throughout this section.

Revenue is the inflow of cash and receivables from the sale of goods and services. Revenue may result from either cash or credit sales. Expenses represent the cost of goods or services which are consumed from the revenue generating process. Revenue and expenses are matched to determine net income and net loss. If the revenue is greater than the expenses, for a particular period, the business has a net income. If, however, expenses are greater than the revenue, for a particular period, the business suffers a net loss. Net income causes an increase in owner's equity, while net loss reports a decrease for owner's equity.

Changes in the Expanded Equation As a Result of Revenue and Expense Transactions

Revenue and expense transactions will be illustrated through Cool Cats' Concert Centre to show how these transactions affect the owner's equity in the accounting equation. Because there are more elements than Assets, Liabilities, and Capital, the equation is sometimes referred to as the expanded equation. However, it is really owner's equity which is expanded to include revenue and expense items as well as capital.

CHANGES IN THE EXPANDED EQUATION

Follow the description and analysis for each transaction and observe how the accounting equation is still in balance. Transactions H, I, J, and K, are illustrated on page 64.

Revenue Transactions:

Transaction H: As of June 1, 1981 Cool Cats' Concert Centre has received \$2 000 cash from the sale of concert tickets.

Analysis: Like the transactions in section 3, the elements of accounting are affected. Cash increases by \$2 000 because the business has more money,

BUSINESS TRANSACTIONS FOR COOL CATS' CONCERT CENTRE TO ILLUSTRATE CHANGES IN THE EXPANDED EQUATION

	Cash	Accounts Receivable	Office Equipment	Furniture	Bank Loan Payable	Accounts Payable	Far Out Joey Spacely, Capital	Revenue	Expenses
Transaction H	10 400 + +2 000	0 +	2 000 +	4 000 +	3 000 +	1 400 +	12 000 +	+2 000	
	12 400 +	0 +	2 000 +	4 000 +	3 000 +	1 400 +	12 000 +	2 000 +	
		18 400			4 400		14 000		
Transaction I	12 400 +	0 +	2 000 +	4 000 +	3 000 +	1 400 +	12 000 +	2 000 +	
	12 400 +	+1 500	2 000 +	4 000 +	3 000 +	1 400 +	12 000 +	+1 500	
		19 900			4 400		15 500	3 500	
Transaction J	12 400 + -650	1 500 +	2 000 +	4 000 +	3 000 +	1 400 +	12 000 +	3 500	-650
	11 750 +	1 500 +	2 000 +	4 000 +	3 000 +	1 400 +	12 000 +	3 500 -	650
		19 250			4 400		14 850		
Transaction K	11 750 +	1 500 +	2 000 +	4 000 +	3 000 +	1 400 +	12 000 +	3 500 -	650
	11 750 +	1 500 +	2 000 +	4 000 +	3 000 +	+400	12 000 +	-400	
		19 250			4 400		14 850	3 500 -	1 050

There are no other assets affected as the result of this transaction. The business also did not incur a liability because this transaction does not represent a debt for the business. This means that the owner's equity must increase by the same amount as the asset, cash. But, capital cannot increase because Far Out Joey Spacely did not invest cash or other assets in the business. This transaction involved a sale of services. A business can either sell goods or render services. The sale of concert tickets represents a revenue for Cool Cats' Concert Centre because a service was provided to its customers. This service was provided through the sale of concert tickets. Thus, it is known as a revenue transaction because it is the result of doing business over time. As a result, an increase of \$2 000 in the asset, cash, is offset by an increase in owner's equity through revenue. Because assets and owner's equity increased by the same amount, the equation is still in balance.

Transaction I: On June 3, 1981 Cool Cats' Concert Centre sold tickets to Leisure Larry's Laid Back Music Company for \$1 500 allowing 30 days credit.

Analysis: The transaction has affected two of the three elements. The asset, accounts receivable, increases by \$1 500 as a result of Cool Cats' Concert Centre's claim on its customer, Leisure Larry's Laid Back Music Company, until the debt is repaid. Revenue has been rendered from the sale of services and as a result has also increased owner's equity by an additional \$1 500. The accounting equation is still in balance because an element on the left side of the equation, assets, has increased proportionately to an element on the right side of the equation, owner's equity.

Summary of Transactions H and I

Transactions H and I represent an opportunity to examine the definition for revenue. Revenue was earned through a cash sale in transaction H and a credit sale in transaction I. Thus revenue represented an inflow of cash and receivables from the sale of goods and services to its customers.

All inflows of cash or receivables to a business are not revenue transactions. A customer may discharge a debt and thereby pay off an accounts receivable. Similarly, a business can increase its cash through a bank loan. This is also not a revenue transaction. For a revenue transaction to occur the inflow of cash and receivables must be the result of sales of goods and services. Revenue cannot be claimed as a result of additional investment by the owner, or the payment of a receivable, or any other transaction which does not involve the sale of goods or services.

Revenue is recorded at the time of the sale of goods and services. This is why a credit sale, and a cash sale are both considered as forms of revenue.

Expense Transactions

All businesses incur expenses so that they can generate revenue. Examples of expenses include salaries, telephone bills, rent, utilities, and other items which are necessary to carry on the daily routines of the business. Expenses represent the cost of goods and services consumed in the process of generating revenue. Expenses are considered expired costs because they are consumed to generate revenue.

Transaction J: To obtain \$3 500 revenue during the month of June, Cool Cats' Concert Centre paid cash totalling \$650 during the month of June for the following expenses: Rent - \$500; Utilities - \$100; and Telephone - \$50.

Analysis: Since Cool Cats' Concert Centre paid cash then cash decreases by \$650. In order for the accounting equation to balance there are two alternatives. One, an asset other than cash would increase; however, this is not correct because the business did not gain any assets as a result of the transaction. The answer must be that something on the right side of the equation decreased by the same amount as the left side of the equation. Liabilities remained the same because cash was paid for the expenses. By a process of elimination, the owner's equity must decrease to offset this decrease in assets. Expenses cause the owner's equity to decrease just as revenue causes the owner's equity to increase. The minus sign before the \$650 on the illustration of business transactions (page 64) highlights this point. Because expenses cause a decrease in owner's equity and assets decreased by the same amount, the equation is still in balance.

Transaction K: On June 30, 1981 Cool Cats' Concert Centre receives a bill for \$400 from the Bandland Jazz Chronicle for advertising expenses incurred during the month of June. The bill allows Cool Cats' Concert Centre 30 days to pay the advertising expense.

Analysis: Since Cool Cats' Concert Centre incurred an expense as a result of a credit transaction, the left side of the equation is not affected. Because a time payment is involved Cool Cats' Concert Centre incurred a liability, accounts payable to the Bandland Jazz Chronicle for \$400. The accounting equation always balances. Since there is no change on the left side of the equation, the owner's equity must decrease by the same amount as the increase in the liability. The decrease to owner's equity by \$400 is recorded to offset the \$400 increase to the liability.

Summary of Expense Transactions

Like the revenue transactions which recorded revenue when they occurred, expense transactions must be recorded when incurred. It is irrelevant whether the business has not paid cash for the expenses. Expenses represent the expired costs incurred from generating revenue. Revenue was defined as the inflow of cash and receivables from the sale of goods and services. Similarly, expenses can also be interpreted as the outflow of cash and increase in liabilities for the costs used up to generate revenue.

Summary of Revenue and Expense Transactions

It was stated at the beginning of this topic that revenue and expense transactions account for the profitability or loss that a business might have. In accounting a preferred term to profit is income. The measurement of whether a business is successful financial for an accounting period (later defined) occurs when revenues exceed expenses. If this is the case, then the business will have a net income. If expenses are greater than revenue, the business will suffer a net loss. In Far Out Joey Spacely's business, Cool Cats' Concert Centre, he had a net income of \$2 450. This is illustrated on page 69.

Owner's equity consists of two parts: (i) the investment of the owner representing the capital; and (ii) net income or net loss resulting from revenues matched with expenses. If revenues exceed expenses like the illustration on page 69, the result will be a net income. However, if expenses are greater than revenue, a net loss would occur. A net income increases owner's equity and a net loss decreases owner's equity. Page 70 has two examples. In the first example a net income for Far Out Joey Spacely is shown. The second example shows how a net loss decreases owner's equity.

NET INCOME ADDED TO CAPITAL WHEN REVENUE EXCEEDS EXPENSES

Cash	11 750	Accounts Receivable	1 500	Office Equipment	2 000	Furniture	4 000	Bank Loan Payable	3 000	Accounts Payable	1 800	Far Out Joey Spacely, Capital	12 000	3 050 - Revenue 1 050 - Expenses	2 450 - Net Income
ASSETS = LIABILITIES + OWNER'S EQUITY															
19 250 = 19 250															

EXAMPLE 1: Net Income Increases Owner's Equity

Far Out Joey Spacely, Capital	3 500	Revenue
	<u>1 050</u>	Expenses
12 000	+	2 450
14 450		

EXAMPLE 2: Net Income Decreases Owner's Equity

Far Out Joey Spacely, Capital	3 500	Revenue
	<u>4 000</u>	Expenses
12 000	-	500
11 500		

PERFORMANCE OBJECTIVE 13:

Given a procedure for analyzing revenue and expense transactions, the student will:

- (a) summarize transactions H to K for Cool Cats' Concert Centre from the illustration on page 72; and
- (b) match revenue with expenses to determine if Cool Cats' Concert Centre yielded a net income or suffered a net loss.

INSTRUCTIONS:

Complete Learning Task 13.

LEARNING TASK 13:

Examine the summary of transactions H to K for Cool Cats' Concert Centre. There are three principles which must be remembered when analyzing business transactions: (1) each transaction effects at least two items; (2) the elements are expressed in dollar amounts; and (3) the effects of the transaction leave the accounting equation in balance.

Write out a description and analysis for Transactions H, I, J, and K from the summary.

EVALUATION:

For the summary transaction exercise check your analysis with the analysis previously described in the module. Make sure you understand what errors you may have made and why you made them. If you have any difficulty ask your instructor to clarify any vague points which you might have.

	Cash	Accounts Receivable	Office Equipment	Furniture		Bank Loan Payable	Accounts Payable	Far Out Joey Spacely, Capital	Revenue	Expenses
TRANSACTION H	10 400	+	0	+	2 000	+	4 000			
	+2 000									
TRANSACTION I	12 400	+	0	+	2 000	+	4 000		2 000	
			+1 500						+1 500	
TRANSACTION J	12 400	+	1 500	+	2 000	+	4 000		3 500	
	-650									-650
TRANSACTION K	11 750	+	1 500	+	2 000	+	4 000		3 500	650
							+400			-400
	11 750	+	1 500	+	2 000	+	4 000		3 500	- 1 050

PERFORMANCE OBJECTIVE 14:

Given the solution to transaction 8 for Office Services, the student will complete transactions 9, 10, and 11 to determine if Mary Best yielded a net income or suffered a net loss.

INSTRUCTIONS:

Complete Learning Task 14 on the forms provided in the module.

LEARNING TASK 14:

Transaction 8 has been analyzed for Office Services. Complete the remainder of this exercise using the forms provided in the module (pages 74-77). Complete the exercise by writing an analysis for each business transaction. After analyzing each business transaction calculate the net income for Office Services to determine if Mary Best, the owner, yielded a net income or suffered a net loss.

EVALUATION:

Your instructor will mark your solution. Make sure you correct all errors before proceeding to Learning Task 15. Your instructor will review some material with you if you did not achieve 80% in this task.

Transaction (8): Received \$2 000 cash from the sale of office services for the month of October.

ASSETS		=	LIABILITIES		+	OWNER'S EQUITY	
ACCTS.			BANK LOAN	ACCTS.		MARY BEST,	
CASH	EQUIP.		PAYABLE	PAY.		CAPITAL	REVENUE
\$ 8 600	+ \$500	=	\$2 000	+ \$1 400	+	\$19 600	
(8) +2 000							+ \$2 000
\$10 600	+ \$500	=	\$2 000	+ \$1 400	+	\$19 600	+ \$2 000
\$25 000		=	\$3 400		+	\$21 600	

- ANALYSIS: 1 WHEN A BUSINESS SELLS SERVICES FOR CASH, TWO FUNDAMENTAL ELEMENTS ARE AFFECTED: ASSETS AND THE REVENUE UNDER OWNER'S **EQUITY**.
- 2 THE LEFT SIDE OF THE EQUATION IS INCREASED BY \$2 000 BECAUSE THE BUSINESS HAS ADDITIONAL CASH RESULTING FROM THE SALE OF SERVICES.
- 3 THE RIGHT SIDE OF THE EQUATION MUST ALSO INCREASE BY THE SAME AMOUNT BECAUSE THE TOTAL CLAIMS AGAINST THE ASSETS MUST ALWAYS EQUAL THE TOTAL OF THE ASSETS THEMSELVES.
- 4 SINCE LIABILITIES ARE NOT AFFECTED, OWNER'S EQUITY MUST INCREASE. IN THIS TRANSACTION, REVENUE CAUSES AN INCREASE IN OWNER'S EQUITY.
- 5 THE RIGHT SIDE OF THE EQUATION HAS BEEN EXPANDED AND NOW TOTALS TO THE SAME AMOUNT AS THE LEFT SIDE.

<u>ASSETS</u>		=	<u>LIABILITIES</u>		+	<u>OWNER'S EQUITY</u>	
CASH	ACCTS.		BANK LOAN	ACCTS.		MARY BEST,	
\$10 600	REC.		PAYABLE	PAY.		CAPITAL	REVENUE
+ \$ 500	EQUIP.		\$2 000	+ \$1 400	+	\$19 600	+ \$2 000
+ \$13 900		=					

Transaction (10): To obtain the \$7 000 revenue from sales of services during October, Office Services paid cash totalling \$3 100 as of October 31 for the following expenses: Rent, \$600; Salaries, \$2 400; Utilities, \$70; and Telephone, \$30.

<u>ASSETS</u>	=	<u>LIABILITIES</u>	+	<u>OWNER'S EQUITY</u>
ACCTS.		BANK LOAN		MARY BEST,
CASH		PAYABLE		CAPITAL
\$10 600 + \$5 500 + \$13 900	=	\$2 000 + \$1 400	+	REVENUE
				\$19 600 + \$7 000

Transaction (11): At the end of October, Office Services received a bill for \$900 from City News, a local newspaper, for running several advertisements during October. The bill allows Office Services a period of 30 days in which to pay for the advertising.

ASSETS		=	LIABILITIES		+	OWNER'S EQUITY	
CASH			BANK LOAN			MARY BEST,	
\$7 500 + \$5 500 + \$13 900		=	PAYABLE			CAPITAL	
			\$2 000 + \$1 400		+	\$19 600	
						REVENUE	
						\$7 000 -	
						EXPENSES	
						\$3 100	

Kaluza, trans. 19

CALCULATE NET INCOME OR NET LOSS

PERFORMANCE OBJECTIVE 15:

Given an exercise measuring vocabulary comprehension the student will identify terms by filling in the appropriate blanks.

INSTRUCTIONS:

Complete Learning Task 15.

LEARNING TASK 15:*

Complete the following statements by filling in the blanks with the correct word or words.

1. The inflow of cash, receivables, and other assets from the sale of goods and services is called _____.
2. When a business sells goods or services both sides of the accounting equation _____.
3. Revenue increases both assets and _____.
4. The increase in owner's equity that results from a sale is called _____.
5. When a business sells services for cash, two elements are affected: _____; and _____.
6. When a business sells goods on credit, two elements are affected: _____; and _____.
7. The owner's investment in the business is identified by the term _____.

*This exercise was taken from Weaver's Learning Guides, pp. 27-28

8. The total claims against the assets of a business must always equal the total of the _____.
9. Goods and services used in the operation of a business are called _____.
10. Expenses are matched against revenues for the same period of time to determine whether a business has earned a _____ or suffered a _____.
11. Having revenues greater than expenses results in a _____.
12. Having expenses greater than revenues results in a _____.
13. When a business pays cash for an expense, two elements are affected: _____; and _____.
14. Owner's equity is affected not only by changes in the investment but also by _____ and _____.
15. When a business promises to pay for an expense in the future, two elements are affected: _____; and _____.
- _____ . The element _____ increases and the element _____ decreases.

EVALUATION:

Hand this exercise to your instructor for marking.

_____ Congratulations, you met the criteria of 80%. Continue with Learning Task 16.

_____ You did not meet the criteria of 80%. Correct your errors and see your instructor. Your instructor will prescribe remedial work so that you can accomplish this objective.

PERFORMANCE OBJECTIVE 16:

Given 15 business transactions and the appropriate forms, the student will:

- (a) fill in the blanks to indicate what happens to the accounting equation as a result of each transaction; and
- (b) rearrange the final equation to illustrate the matching principle of revenue and expenses.

INSTRUCTIONS:

Open your textbook to page 37 and Complete Learning Task 16.

LEARNING TASK 16:

Complete problem 2-3 parts (a) and (b) from your text directly in the module. Paper is provided for this problem on the next two pages.

EVALUATION:

_____ Congratulations you met the criteria of 80%. You have now completed this topic. Begin Topic 5: The Income Statement.

_____ You did not meet the criteria of 80%. Correct your work and see your instructor who will prescribe remedial work so that you can master this objective.

	CASH	ACCOUNTS RECEIVABLE	EQUIPMENT	BANK LOAN	ACCOUNTS PAYABLE	J. PITTS, CAPITAL	REVENUE	EXPENSE
Trans. i	+	+	+	=	+	+	-	-
New Bal.	+	+	+	=	+	+	-	-
Trans ii								
New Bal.	+	+	+	=	+	+	+	+
Trans iii								
New Bal.	+	+	+	=	+	+	-	-
Trans iv								
New Bal.	+	+	+	=	+	+	-	-
Trans v								
New Bal	+	+	+	=	+	+	-	-
Trans vi								
New Bal	+	+	+	=	+	+	-	-
Trans vii								
New Bal	+	+	+	=	+	+	-	-
Trans viii								
New Bal	+	+	+	=	+	+	-	-
Trans ix								
New Bal	+	+	+	=	+	+	-	-

	CASH	ACCOUNTS REC.	EQUIPMENT	BANK LOAN	ACCTS. PAY.	J. PITTS, CAP.	REVENUE	EXPENSE
Previous Balance	_____	_____ + _____	_____ + _____	_____ = _____	_____ + _____	_____ + _____	_____ + _____	_____ - _____
Trans x	_____	_____	_____	_____	_____	_____	_____	_____
New Bal	_____	_____ + _____	_____ + _____	_____ = _____	_____ + _____	_____ + _____	_____ + _____	_____ - _____
Trans xi	_____	_____	_____	_____	_____	_____	_____	_____
New Bal	_____	_____ + _____	_____ + _____	_____ = _____	_____ + _____	_____ + _____	_____ + _____	_____ - _____
Trans xii	_____	_____	_____	_____	_____	_____	_____	_____
New Bal	_____	_____ + _____	_____ + _____	_____ = _____	_____ + _____	_____ + _____	_____ + _____	_____ - _____
Trans xiii	_____	_____	_____	_____	_____	_____	_____	_____
New Bal	_____	_____ + _____	_____ + _____	_____ = _____	_____ + _____	_____ + _____	_____ + _____	_____ - _____
Trans xiv	_____	_____	_____	_____	_____	_____	_____	_____
New Bal	_____	_____ + _____	_____ + _____	_____ = _____	_____ + _____	_____ + _____	_____ + _____	_____ - _____
Trans xv	_____	_____	_____	_____	_____	_____	_____	_____
Final Bal.	_____	_____ + _____	_____ + _____	_____ = _____	_____ + _____	_____ + _____	_____ + _____	_____ - _____

Rewrite the final line of the equation to illustrate the matching principle:

TOPIC 5: THE INCOME STATEMENT

INSTRUCTIONS:

Read pages 38 to 48 in your textbook. The following notes are a summary of the main points for this topic.

Introduction to the Income Statement

In the previous topic you learned that revenue and expense transactions expand the accounting equation. You also learned that if revenues are greater than expenses then the business will yield a net income, but if revenues were less than expenses the business would have a loss. The owner's equity element in the accounting equation has two parts: capital -- the investment of the owner; and net income or net loss -- revenue minus expenses.

In topic 3 you learned that a financial statement, the balance sheet, was prepared to show the financial position of a business at a specified point in time. You also need a balance sheet to show the changes which have occurred to the asset, liabilities and owner's equity elements in the equation. But before a balance sheet can be prepared another statement, the income statement, is required to report the revenue and expense items. From the income statement a net income or a net loss will be determined and transferred to the owner's equity section in the balance sheet.

This topic is concerned with the income statement. Topic 5 will be organized in the following sections: (1) Analysis of the Income Statement; (2) Preparation of the Income Statement. Like the previous illustrations, and Cool Cat's Concert Centre will be used to describe the concepts concerning the income statement.

The income statement summarizes the revenue and related expenses to report the net income or net loss for a specified accounting period. An accounting period is defined as the period of time in which revenue and related expenses have been matched in order to measure the net income or net loss for a business. The accounting period is twelve months long; however, it may on occasion be only three months or six months. This is unlike the balance sheet, which measures the financial position of assets, liabilities and owner's equity. The income statement is prepared first so that the net income or net loss can be transferred to the owner's equity section of the balance sheet.

The illustration on page 84 shows the expanded equation and Income Statement for Cool Cats' Concert Centre. The accounting period in this case is one month rather than one year --- the revenues and expenses were only recorded for the month of June.)

Analyzing the Income Statement

1. The structure of the income statement consists of two parts: (i) the heading; and (ii) the body.
2. The heading has the following essential features:
 - 1st line - the name of the business
 - 2nd line - the name of the statement
 - 3rd line - the length of the accounting period for which revenues have been matched to related expenses which result in a net income or net loss.

Like the balance sheet, the heading for the income statement answers the questions: Who? - line 1; What? - line 2; and When? - line 3.

Unlike the heading in the balance sheet the words preceding the date are for the month ended instead of as at. The date could read for the year ended if the accounting period was a year. The reason why the date is stated for the period ended is that the income statement measures revenue and expenses over a period of time rather than at a specific time period. For this reason, the month, year, or period ended precedes the date rather than the words "as at" on line 3 of the heading of the income statement.

3. The body has three parts:

- (1) Revenue Section - reports cash sales under one heading, Sales, which is extended to the far right of the statement.
- (2) The Expense Section - reports the various expenses separately and totals these under the heading total expenses which is also extended to the far right of the statement.
- (3) Net income, or it could be read net loss if the business suffered a loss for the accounting period. The figure is also extended to the far right of the statement after expenses have been deducted from revenue.

Other Important Features

The income statement is necessary because it provides creditors and outside interest parties with a public statement on how well or how poorly a business is doing. The revenue and expense items indicate how the business receives and spends money to carry out its daily transactions. The accounting period in an income statement could consist of one month, three months, six months or one year. If the accounting period covers a year it is known as a fiscal year. A fiscal year is defined as any twelve month period. A fiscal year can be the same as a calendar year i.e., January 1 until December 31

of the same year or it could be any twelve month period. The Federal Government of Canada uses the fiscal year from April 1 until the following March 31.

The income statement can derive revenue from more than one type of source. For example, Far Out Joey Spacely received revenue from the sale of concert tickets. This is known as a primary type revenue. Primary type revenues are defined as revenues derived from the main source of business operations. A business may have a secondary type revenue, however. Secondary type revenues are revenues derived from investments. If Far Out Joey Spacely used cash from the business to purchase bonds, or stocks, and a dividend was sent to Cool Cats' Concert Centre this would represent revenues earned from investment and would be a secondary type revenue.

Net income or net loss matches revenue with expenses for a stated accounting period. In some business the term net income is referred to as net profits or net earnings. In any event, you must know the revenue and expenses to determine if the business had a net income or net loss. Net income or net loss is calculated by subtracting the expenses from revenue.

The income statement has limitations. Four limitations include:

1. The income statement does not predict future net income for a business.
2. The income statement reports only an approximation of net income for a given accounting period. In practice it is difficult to match expenses against revenues because an expense may generate revenue for more than one accounting period. For example, a business may advertise their product on the radio, television, or some other

medium, and this cost is stated, in total, as an expense. However, some of that cost might attribute to revenues in the future.

For example, an advertising expense incurred in one accounting period might result in a source of revenue for a future accounting period. All accounting can do, therefore, is to provide a fair match-up on the basis of known information at the time the transaction occurs.

3. The income statement does not report the true profit of a business. A true profit is defined as the difference between the total funds invested over the life of the business and the funds realized from the sale of the business. To realize a true profit one would have to calculate the difference between the amounts of cash invested during the life of the business and the amount realized after the sale of the business. Withdrawals from the business by the owner would have to be considered before realizing a true profit. Although, this may be considered desirable, it is impractical because creditors need to know how a business is doing financially. The law also requires that financial statements must be prepared once a year showing sources of income.
4. Net income does not mean cash. A customer may be given 30, 60, or 90 days to pay for goods and services from a business. The purpose of net income is to match expenses with revenue during the same accounting period. Transactions involving revenue and expenses are recorded when incurred because by the time a customer pays for the goods and services the business may be in another accounting period. Another example which illustrates that net income does not mean cash is when the business reinvests cash from the sale

of goods and services to acquire additional assets. Great care must be taken to ensure that revenue and expense transactions are related to the same accounting period.

INSTRUCTIONS:

To see if you understand some of the accounting principles presented in the summary read performance objective 17 and attempt the accompanying learning task.

PERFORMANCE OBJECTIVE 17:

Given an exercise with incorrect words the student will circle the incorrect word and write his or her solution in the answer column.

INSTRUCTIONS:

Complete Learning Task 17.

LEARNING TASK 17:

Circle the incorrect word or words in each of the following statements.
Then write the correct word or words in the answer column.

Example: The period of time covered by the income statement is
called the audit period.

Accounting

Continue as in the above example:

1. The total revenue plus the total expenses gives the
net income. _____
2. The income statement shows the financial position of a business
on a given date. _____
3. The income statement answers three questions: Who?
How? When? _____
4. To determine how the net income of a business was obtained
you would examine the balance sheet. _____

5. The total expenses are shown on the balance sheet. _____
6. The time from May 1, 1980 to April 30, 1981 is a calendar year. _____
7. The balance sheet shows the revenue, expenses, and net income (or net loss) for a period of time. _____
8. All the elements of the accounting equation are shown on the income statement. _____

EVALUATION:

Hand your exercise to your instructor for marking.

_____ Congratulations, you had 7 out of the 8 answers correct. Continue with the next learning task.

_____ You failed to meet the criteria which was 7 correct out of a possible 8. Correct your work and ask your instructor to prescribe remedial work so that you can master this objective.

Preparing an Income Statement

Preparing a written income statement involves many of the same steps as preparing a written balance sheet. (For a detailed description on preparing a balance sheet see pages 31 to 33 in the module).

Figure A on page 94 illustrates a written income statement for Cool Cats' Concert Centre for the month ended June 30, 1981. Figure A has numbers after each line so that you can follow the steps listed in learning task 18. Of course when you produce the income statement you will not have numbers at the left or right margin as in Figure A.

PERFORMANCE OBJECTIVE 18

Given a blank income statement form and 12 steps describing how to prepare an income statement, the student will prepare an income statement for Cool Cats' Concert Centre for the month ended June 30, 1981.

INSTRUCTIONS:

Complete the income statement on page 95 according to the directions stated in Learning Task 18.

LEARNING TASK 18:

Prepare an income statement on the blank form on page 95 for Cool Cats' Concert Centre. Do not number the lines on the left or right margin. Your income statement should be exactly like the income statement on page 94 except that your lines will not be numbered.

Steps:

- (a) On line 1 write the name of the business. Centre the title.
- (b) On line 2 write the name of the statement. Centre the name of the statement.
- (c) On line 3 write the date. Be sure to include the words, "For the Month Ended."
- (d) On line 5, at the far right margin, write "Revenue."
- (e) On line 6 indent and write, "Sales." Extend and write 3 500.00 in the second right hand column. (Remember not to use either periods or dollar signs on columnar paper.)

- (f) On line 8 at the far margin write "Expenses:"
- (g) On line 9, indent and write, "Rent Expense. Extend 500.00 to the first right column.
- (h) On line 10 indent and write, "Utilities Expense." Extend 100.00 to the first right column.
- (i) On line 11 indent and write, "Telephone Expense." Extend 50.00 to the first right column.
- (j) On line 12 indent and write "Advertising Expense." Extend 50.00 to the first right column.
- (k) On line 13 indent under the separate expenses which have been listed and write "Total Expenses." Extend 1 050.00 to the second right column and put a single line under the total because this amount is to be deducted from the revenue, Sales.
- (l) On line 14 at the left margin write, "Net Income." (If the business had a loss you would write "Net Loss"). Extend 2 450.00 to the second right column. Put two lines _____ underneath the net income to show that the statement is complete.

EVALUATION:

This is a self evaluation exercise. Check your statement with figure A (p. 94) and correct any errors before proceeding to Task 19.

[illegible]

PERFORMANCE OBJECTIVE 19:

Given a list of revenue and expenses the student will prepare an income statement for Suzuki Auto Repair for the Month Ended July 31, 1980.

INSTRUCTIONS:

Open your text to page 42 and complete Learning Task 19.

LEARNING TASK 19:

Complete problem 3-1 from your text directly in the module on page 97.

EVALUATION:

When you have completed the exercise hand your solution to your instructor for marking. Correct all errors before attempting Learning Task 20.

[illegible]

PERFORMANCE OBJECTIVE 20:

Given a list of revenue and expenses the student will prepare an income statement for Paul Graham, M. D. for the month of October 1980.

INSTRUCTIONS:

Open your text to page 43 and complete Learning Task 20.

LEARNING TASK 20:

Complete problem 3-2 from your text directly in the module on page 99.

EVALUATION:

When you have completed the exercise hand your solution to your instructor for marking.

_____ Congratualations, you met the criteria of 80%. Continue with Learning Task 21.

_____ You failed to meet the criteria of 80%. Correct your errors and ask your instructor for a remedial exercise so that you can master this objective.

[illegible]

PERFORMANCE OBJECTIVE 21:

Given a list of revenue and expenses the student will prepare an income statement for Circle Theatre for the year ended December 31, 1980.

INSTRUCTIONS:

Open your textbook to page 43 and complete Learning Task 21.

LEARNING TASK 21:

Complete problem 3-3 from your text directly in the module on page 101.

EVALUATION:

When you have completed the exercise hand your solution to your instructor for marking.

_____ Congratulations, you met the criteria of 80%. Begin Topic 6: The Income Statement and Related Balance Sheet.

_____ You failed to meet the criteria of 80%. Correct your errors. After you have corrected your errors ask your instructor for a remedial exercise so that you can master this objective. You need to have a good knowledge of the income statement before you attempt the next topic.

[illegible]

TOPIC 6: THE INCOME STATEMENT AND RELATED BALANCE SHEET

The opening balance sheet changes as a result of revenue and expense transactions. Revenue increases assets such as Cash and Accounts Receivables. Expenses change assets like Cash and liabilities such as Accounts Payable. Therefore, a balance sheet must be prepared as at the end of the financial (accounting) period to report the new position of $A = L + OE$.

The balance sheet in figure A, on page 103, illustrates the income statement and related balance sheet concept. This concept is presented in the owner's equity section of the balance sheet. The owner's equity section is made up of two parts: (i) capital -- the owner's investment; and (ii) net income or net loss -- revenue minus expenses. Because there is a net income of \$2 450 in figure A, this amount is added to the capital account to give the total owner's equity. If there was a net loss, the net loss amount would be deducted from capital to give the total owner's equity.

The balance sheet in figure A (page 103) has recorded the addition of accounts payable to Bandland Jazz Chronicle for the advertising expense incurred during the month of June.

A written balance sheet with both capital and net income to the owner's equity has been prepared for Cool Cats' Concert Centre as at June 30, 1981. This is illustrated on figure B on page 104. Note that for figure B the rules described earlier in this module (see pages 31 to 33) are the same for the Balance Sheet for Far Out Joey Spacely's business, Cool Cats' Concert Centre, as at June 30, 1981.

Cash		Furniture	Bank Loan Payable	Accounts Payable	Far Out, Joey Spacely Capital	Net Income
11 750	1 500	4 000	3 000	1 800	12 000	2 450
		19 250	4 800		14 450	

Cool Cats' Concert Centre
Balance Sheet
As at June 30, 1981

Assets		Liabilities	
Cash	\$ 11 750	Bank Loan Payable	\$ 3 000
Accounts Receivable:		Accounts Payable:	
Leisure Larry Music Co.	1 500	Tacky Tape Supplies \$	400
Office Equipment	2 000	Furry Furniture Co.	1 000
Furniture	4 000	Bandland Jazz Chronicle	400
		Total Liabilities	\$ 4 800
		Owner's Equity	
		Far Out Joey Spacely,	
		Capital	\$ 12 000
		Net Income	2 450
		Total Owner's Equity	14 450
Total	<u>\$ 19 250</u>	Total	<u>\$ 19 250</u>

FIGURE B. Cool Cats' Concert Centre
Balance Sheet

As at June 30, 1981

Assets		Liabilities	
Cash	11 750 00	Bank Loan Payable	300 000
Accounts Receivable:	15 000 00	Accounts Payable:	
Leisure Larry Music Co.	2 000 00	Tacky Tape Supplies	400 00
Office Equipment	4 000 00	Funny Furniture Co.	1 000 00
Furniture		Bandband Jazz	
		Chronicle	400 18 00 00
		Total liabilities	480 00 00
		Owner's Equity	
		Few Out Joey Sparcely,	
		Capital	12 000 00
		Net Income	2 450 00
		Total Owner's Equity	14 450 00
Total	192 500 00	Total	192 500 00

PERFORMANCE OBJECTIVE 22:

Given the initial balances for Cash, Accounts Receivable, Furniture, Accounts Payable, Carl Case, Capital, Sales, and Expenses for the month ended November 30, 1980, the student will:

- (a) set up an expanded accounting equation to classify the financial data for the business;
- (b) prepare an income statement for the accounting period; and
- (c) prepare a balance sheet for the end of the accounting period.

INSTRUCTIONS:

Open your textbook to page 43 and complete Learning Task 22.

LEARNING TASK 22:

Complete problem 3-4 from the text directly in the module on pages 106 and 107.

EVALUATION:

When you have completed the exercise hand your solution to your instructor for marking.

_____ Congratulations, you met the criteria of 80%. Continue with Learning Task 23.

_____ You failed to meet the criteria of 80%. Correct your errors and ask your instructor for a remedial exercise so that you can master this objective.

[illegible]

[illegible]

PERFORMANCE OBJECTIVE 23:

Given the initial balances for Cash, Accounts Receivable, Office Equipment, Expenses, Bank Loan, Accounts Payable, A. MacPherson, Capital, Sales, plus a breakdown of expense items and creditors for the Fredericton Travel Bureau, the student will:

- (a) set up an expanded accounting equation to classify the financial data for the business;
- (b) prepare an income statement for the accounting period; and
- (c) prepare a related balance sheet for the end of the accounting period.

INSTRUCTIONS:

Open your textbook to page 43 and complete Learning Task 23.

LEARNING TASK 23:

Complete problem 3-5 from your text directly in the module on pages 109 and 110.

EVALUATION:

When you have completed the exercise hand your solution to your instructor for marking.

_____ Congratulations, you met the criteria of 80%. Continue with Learning Task 24.

_____ You failed to meet the criteria of 80%. Correct your errors and ask your instructor for a remedial exercise so that you can master this objective.

[illegible]

PERFORMANCE OBJECTIVE 24:

Given the management case of the Economy Car Rental Company, the student will determine whether or not Fred Katch, the owner, needs a loan to continue his daily business transactions.

INSTRUCTIONS:

Read page 20 in your textbook which describes how to analyze management cases.

Turn to page 50 of your text and complete Learning Task 24.

LEARNING TASK 24:

Complete Management Case 4 in your textbook. Write your solution on page 112.

EVALUATION:

Once you have completed the exercise hand your solution to your instructor for marking.

_____ Congratulations, you met the criteria of 80%. Ask your instructor for a post-test. (Accounting Module Test - Form 1)

_____ You need more practice for this type of exercise. Correct your solution and show your corrections to your instructor. Once you feel confident that you can master a case analysis ask your instructor for another management case so that you can demonstrate that you know how to do this type of exercise.

SOLUTION FOR MANAGEMENT CASE:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[illegible]

Name: _____

ACCOUNTING EQUATION MODULE TEST

Form 1

TOPIC	CRITERION	MARK	COMMENTS
1. Accounting terms for the simple equation	10 out of 12		
2. Solve for Unknown	8 out of 12		
3. Classifying A, L, OE	5 out of 6		
4. Preparing financial statements	10 out of 12		
5. Fill in blanks: expanded equation terms	10 out of 12		
6. Identifying statements	3 out of 4		
7. Analyzing Expanded Equation	4 out of 5		
8. Solve for an Unknown in the expanded equation	6 out of 8		
9. Analyzing Business Transactions	8 out of 11		
10. Preparing financial statements	8 out of 10		
11. Case Analysis	8 out of 10		

TOTAL _____

ACCOUNTING EQUATION TEST

Form 1

Name: _____

General Instruction: Unless otherwise stated, answer all questions directly on the examination paper.

PART 1: INTRODUCING THE ACCOUNTING EQUATION

1. Fill in the blanks with the correct term or terms.

- a) The accounting equation consists of three parts: _____
_____ and _____.
- b) _____ are shown on the left side of the equation,
while _____ and _____ are shown on
the right side of the equation.
- c) The _____ are the economic resources required to
establish any business and represents what a business owns.
- d) The _____ are the claims of creditors against
the business and represents the debts of a business.
- e) The _____ section is the claim the owner has
against the _____ of the business. It represents
the owner's financial interest in the business.
- f) The accounting equation is always in _____ because
the total _____ are equal to the total _____
and _____.
- g) A financial statement which illustrates the accounting equation is
_____.

2 Marks

- h) The _____ shows the financial position of a business as at a specific date.
- i) The heading of the _____ answers three questions. _____? _____? and _____?
- j) The _____ section lists its _____ resources in order of _____ which refers to the ease in which the _____ can be converted into cash.
- k) The _____ section lists its debts when they become due.

2. Using the accounting equation solve for each unknown.

<u>A</u>	<u>L</u>	<u>OE</u>
21 000	7 000	_____
17 000	_____	12 000
_____	6 000	800
1 200	400	_____
220	110	_____
1 700	_____	1 620
11 111	_____	11 110
12 000	0	_____
22 000	20 000	_____

3. If _____ are what a business owns, and _____ are what a business owes, and _____ represents the owner's investment, complete the following exercise.

- a) Classify each item listed below as an A, L, or OE.
- b) Determine which side of the accounting equation each item would appear - either the left side (LS) or the right side (RS).

10 Marks

EXAMPLE: Amount owed
to a firm for pur-
chasing goods on
time

A	L	OE	LS	RS
_____	_____✓_____	_____	_____	_____✓_____

COMPLETE THE FOLLOWING
LIKE THE EXAMPLE ABOVE

(i) Written promise by a customer to pay a debt.	_____	_____	_____	_____	_____
(ii) Cash in bank.	_____	_____	_____	_____	_____
(iii) Investment by Owner.	_____	_____	_____	_____	_____
(iv) Written promise to pay a customer.	_____	_____	_____	_____	_____
(v) Equipment.	_____	_____	_____	_____	_____
(vi) Bank Loan.	_____	_____	_____	_____	_____

4. On the columnar paper provided, prepare financial statements:

(i) A financial statement for Robert Hill's business known as
Quality Typewriter Service and

(ii) A financial statement for Mary Talbot's business called Superior
Office Supplies Service.

Robert Hill's business has the following information as at January 31, 1981.

1. Customers owe him \$5 000.
2. His office equipment is costing \$2 000.
3. Owes creditors \$6 000 (James Murphy-\$2 000 and Alex Goodchild-\$4 000)
4. Has a business typewriter costing \$400.
5. Has office furniture costing \$3 000.

Mary Talbot's business consists of the following items as at February 28, 1981.

1. Has \$1 000 cash.
2. Owes National Supply Company \$200.
3. R. Muckle owes her \$700.
4. Has equipment costing \$5 000.
5. Owes her bank \$1 200.
6. Has supplies costing \$125.

PART 2: THE EXPANDED EQUATION

5. Fill in the blanks with the correct term or terms.

- a) The inflow of cash and receivables from the sale of goods and services is called _____.
- b) When a business sells goods and services both sides of the accounting equation _____.
- c) When a business sells services for cash two sides of the equation are affected: _____; and _____.
- d) When a business sells services on credit, two elements are effected: _____; and _____.
- e) The total claims against the _____ must always equal the total of _____.
- f) Goods and services used in the operation of a business are called _____.
- g) _____ are matched against _____ for the same period of time to determine whether the business has earned a _____ or suffered a _____.
- h) When a business pays cash for a bill or an _____ two elements of the equation are affected: _____; and _____.
- i) _____ is affected not only by changes in the investment but also by _____ and _____.
- j) When a business promises to pay for a bill or an _____ in the future two elements are effected: _____; and _____.
- _____ The element _____

arks

increases and the element _____ decreases.

6. Each item is shown on two different financial statements. In the answer column indicate the correct statement for each item.

Rent Expense	_____
Total Sales	_____
Office Equipment	_____
Utilities Expense	_____
Length of Accounting Period	_____
Roy Bell, Capital	_____
Revenue	_____
Furniture	_____

4 Marks

7. Indicate what happens to each of the three fundamental elements as a result of each transaction. In the answer column, write + (increase), - (decrease), or O (no change) for each element.

	A	L	OE
1. Sold services to customer on credit.	_____	_____	_____
2. Paid cash for expenses.	_____	_____	_____
3. Received cash for services.	_____	_____	_____
4. Owner withdrew cash from the business.	_____	_____	_____
5. Purchased equipment on credit.	_____	_____	_____
6. Owner invested additional cash in the business.	_____	_____	_____
7. Paid cash in payment of an account payable.	_____	_____	_____
8. Returned equipment bought on credit	_____	_____	_____
9. Paid cash for rent expense.	_____	_____	_____
10. Incurred an expense through an account payable.	_____	_____	_____

Marks

8. In the answer column, record the missing amount for each of the following.

	Revenue	Expense	Net Income	Net Loss	Answer Column
1.	\$12 000	\$12 000	?		
2.	40 000	50 000		?	
3.	18 000	?	6 000		
4.	50 000	?		6 500	
5.	?	20 000		4 000	
6.	?	25 000	5 000		
7.	67 000	35 000	?		
8.	100 000	?	80 000		

8 Marks

9. Selected transactions of the Hart Company for October are summarized below in equation form, with each of the ten transactions identified by a letter. Write a brief sentence explaining what happened in each transaction. To save space under Owner's Equity, revenue and expenses are shown as plus and minus factors respectively in calculating net income for the month. (Write your solution on page 11 of the test.)

Trans.	Cash	Accounts Receivable	Equipment	Accounts Payable	Jane Hart, Net Income Capital	
	\$2 500	\$3 500	\$3 000	\$ 700	\$5 000	\$3 300
a	+300	-300				
	\$2 800	\$3 200	\$3 000	\$ 700	\$5 000	\$3 300
b			+200	+200		
	\$2 800	\$3 200	\$3 200	\$ 900	\$5 000	\$3 300
c		+400				+400
	\$2 800	\$3 600	\$3 200	\$ 900	\$5 000	\$3 700
d	-600					-600
	\$2 200	\$3 600	\$3 200	\$ 900	\$5 000	\$3 100
e	+800				+800	
	\$3 000	\$3 600	\$3 200	\$ 900	\$5 800	\$3 100
f	+500					+500
	\$3 500	\$3 600	\$3 200	\$ 900	\$5 800	\$3 600
g			-200	-200		
	\$3 500	\$3 600	\$3 000	\$ 700	\$5 800	\$3 600
h	-200			-200		
	\$3 300	\$3 600	\$3 000	\$ 500	\$5 800	\$3 600
i		+400				+400
	\$3 300	\$4 000	\$3 000	\$ 500	\$5 800	\$4 000
j				+600		-600
	\$3 300	\$4 000	\$3 000	\$1 100	\$5 800	\$3 400

Solution for Question 9

Transactions:

a.

b.

c.

d.

e.

f.

g.

h.

i.

j.

10. On two column paper prepare a financial statement for the Rainbow Theatre for the year ended December 31, 1980. Use the following information to prepare the financial statement.

Admissions Revenue - \$11 632; Salaries Expense - \$8 863;
Advertising Expense - \$24; Insurance Expense - \$30; Telephone Expense - \$10;
Film Rental Expense - \$3 022; Utilities Expense - \$13; Miscellaneous
Expense - \$5; Parking Fees Earned - \$1 230; Projector Rental Expense - \$60;
and Concessions Revenue - \$3350.

11. Assume that you are the bank manager of a branch bank in your community and that your signature is required before any bank loan is granted. Suppose that two applications for a demand business loan have been placed before you: one application from Al's Radio and T. V. Service for a loan of \$5 000; and a second application from Farrell's Stenographic Service for a similar amount of \$5 000. As part of each application, you have required the filing of a balance sheet stating the financial position of the business as at the date of the loan application. Assume that the balance sheets below have been attached to the laon application.

Al's Radio and T. V. Service
Balance Sheet
As at October 1, 1980

Assets			
Cash	\$ 2 000	Bank Loan	\$ 4 000
Accounts Receivable	8 000	Accounts Payable	36 000
Land	30 000	Mortgage Payable (20 year)	<u>50 000</u>
Building	40 000	Total Liabilities	\$ 90 000
Tools	5 000	Owner's Equity	
Equipment	9 000	Al Best, Capital	<u>10 000</u>
Delivery Truck	6 000	Total	<u>\$100 000</u>
Total	<u>\$ 100 000</u>		

-311-

Farrell's Stenographic Service
Balance Sheet
As at October 1, 1980

Assets		Liabilities	
Cash	\$ 15 000	Accounts Payable	\$ 7 000
Accounts Receivable	30 000	Taxes Payable	3 000
Furniture	6 000	Total Liabilities	\$ 10 000
Office Equipment	14 000		
Delivery Equipment	5 000	Owner's Equity	
Total	<u>\$ 70 000</u>	Beverley Farrell, Capital	60 000
		Total	<u>\$ 70 000</u>

1. Would you grant a bank loan to both businesses? Give reasons for your decision.
2. If you knew the net income, or net loss for both businesses, would that influence your decision. Why? and How?

Answer this question in correct paragraph form.

TO THE STUDENT:

The check mark indicates what you will do next.

- ☐ This was a pre-test. After you have completed the test hand it to your instructor and ask for the Accounting Equation Module which you can begin now.
- ☐ This was a post-test. Hand the test to your instructor for marking.
- ☐ Congratulations, you met the criteria for this topic. Ask your instructor for a pre-test for the next topic, "The Need for an Account."
- ☐ You did not meet the criteria. Make the necessary corrections and hand the corrected test to your instructor.
- ☐ Study your corrections. Once you feel confident hand in your corrected form 1 test and write a form 2 test so that you can meet the criteria for this topic

Name: _____

ACCOUNTING EQUATION MODULE TEST

Form 2

TOPIC	CRITERION	MARK	COMMENTS
1. Fill in the blanks - accounting terms	10 out of 12		
2. True and False - accounting concepts	6 out of 8		
3. Solve for unknown: accounting equation	4 out of 5		
4. Preparing Balance Sheets	10 out of 12		
5. Changes in the Accounting Equation	4 out of 5		
6. Identifying items for financial statements	6 out of 8		
7. Changes in Expanded Equation	12 out of 15		
8. Solve for unknown - expanded equation	8 out of 10		
9. Transaction Analysis	12 out of 15		
10. Case Analysis	8 out of 10		

TOTAL: _____

ACCOUNTING EQUATION TEST

Form 2

Name: _____

General Instruction: Unless stated otherwise, answer all questions on the examination paper.

1. Fill in the blanks with the correct term or terms.

1. Assets would be listed on the _____ side of the balance sheet.
2. If the total assets on a balance sheet are \$50 000, and the total owner's equity is \$40 000, the total liabilities are _____.
3. Amounts payable to creditors are listed on the _____ side of the balance sheet.
4. The heading of the balance sheet answers three questions:
_____? _____? and _____?
5. The owner's equity section is on the _____ side of the balance sheet.
6. Most accountants prefer to list the assets on a balance sheet in a certain order known as the _____ order.
7. In the language of business, the "value" of an asset simply means the _____ of that asset, and not the present value or worth of that asset.
8. The total assets of a business equals the total liabilities plus _____.
9. A bank loan would be listed in the _____ section of the balance sheet.
10. Accounts receivable are listed in the _____ section of the balance sheet.

12 Marks

2. Read each statement carefully. If the statement is true, write the letter "T" after the statement. If the statement is false write the letter "F" after the statement.

1. A demand loan is a written promise to repay the loan when the creditor demands payment.
2. Equity capital is the amount that the owner has invested in a business.
3. An asset is a debt that a business owes.
4. In the fundamental accounting equation, the total assets equal the total liabilities plus owner's equity.
5. The accounting entity concept means that accounting separates the business enterprise from the owner.
6. The owner's equity section is shown on the left side of the balance sheet.
7. Amounts that a business owes are called liabilities.
8. The business or individual to whom the debt is owed is called the debtor.

3. Record the missing amounts in each of the following equations.

	Assets	Liabilities	Owner's Equity
1.	\$5 000	\$3 000	_____
2.	\$20 000	_____	\$5 000
3.	_____	\$8 000	\$2 000
4.	_____	\$25 000	\$17 000
5.	\$42 000	_____	\$29 000

4. On columnar paper prepare a balance sheet for each of the following

Mel Sherbourne's business, A-1 Office Supply, has the following assets and liabilities as at December 31, 1980.

Customer owe him \$5 000; Has office equipment costing \$2 000;
Owes creditors \$6 000; Has \$500 cash; Has typewriter costing \$400
Has office furniture costing \$3 000.

Mary Shaw's business, Deluxe Travel Agency, has the following assets and liabilities as at December 31, 1980.

Has \$1 000 cash; Owes National Suppply Co. \$200; R. Ritchie owes her \$300; Has equipment costing \$5 000; R. J. Reed owes her \$600; Owes her bank \$1 200; Has supplies costing \$125.

5. Each statement below can be completed with the word increase or decrease. Decide which is correct and place a check mark beneath the correct word.

	INCREASE	DECREASE
1. When an asset is bought on credit, liabilities	_____	_____
2. When the owner invests additional cash in a business owner's equity will	_____	_____
3. When revenue is received, the owner's equity will	_____	_____
4. When cash is used to pay a liability liabilities will	_____	_____
5. When the owner withdraws cash from a business, assets	_____	_____
6. When expenses are incurred, the owner's equity will	_____	_____
7. When services are sold on credit, assets	_____	_____
8. When cash is used to pay a liability, assets	_____	_____
9. When an asset bought on credit is returned, assets	_____	_____
10. When expenses are paid with cash, owner's equity will	_____	_____

6. Each of the following items is shown on either the balance sheet or the income statement. In the answer column, indicate the correct statement by writing B for the balance sheet and I for the income statement

1. Rent Expense	_____
2. Total Sales	_____
3. Office Equipment	_____
4. Total Assets	_____
5. Utilities Expense	_____

6. Length of Accounting Period	_____
7. Total Expenses	_____
8. Owner's Equity	_____
9. Roy Bell, Capital	_____
10. Revenue	_____
11. Total Liabilities	_____
12. Salaries Expense	_____
13. Accounts Payable	_____
14. Furniture	_____
15. Accounts Receivable	_____
16. Commissions Earned	_____

7. Indicate what happens to the three fundamental elements as a result of each transaction. In the answer column, write + (increase), - (decrease), or O (no change for each element).

	A	L	OE
1. Incurred an expense through an account payable	_____	_____	_____
2. Paid cash for rent expense	_____	_____	_____
3. Returned equipment bought on credit	_____	_____	_____
4. Paid cash in payment of an account payable	_____	_____	_____
5. Owner invested additional cash in business	_____	_____	_____
6. Owner withdrew cash from the business	_____	_____	_____
7. Received cash for services	_____	_____	_____
8. Paid cash for expenses	_____	_____	_____
9. Purchased equipment on credit	_____	_____	_____
10. Sold services to a customer on credit	_____	_____	_____

8. Calculate the missing amount for each of the following blanks.

	Revenue	Expense	Net Income	Net Loss
1.	\$12 000	\$11 999	_____	_____
2.	\$40 000	\$50 000	_____	_____
3.	\$18 000	_____	\$6 000	_____
4.	\$50 000	_____	_____	\$6 500
5.	_____	\$20 000	_____	\$4 000
6.	_____	\$25 000	\$5 000	_____
7.	\$67 000	\$35 000	_____	_____
8.	\$100 000	_____	\$80 000	_____
9.	\$75 000	\$93 000	_____	_____
10.	_____	\$80 000	_____	\$1 500

9. The following transactions occurred during the month of November for A-1 General Services.

- (a) J. Pitts commenced business with the following assets, liabilities, and owner's equity: Cash, \$5 000; Equipment, \$7 000; Bank Loan, \$3 000; J. Pitts, Capital, 9 000.
- (b) Sold services for cash for \$300.
- (c) Bought equipment for \$1 000 in cash.
- (d) Paid \$1 000 to the bank in part payment of the loan.
- (e) Sold services on credit for \$200.
- (f) Received \$75 from the sale of services.
- (g) Bought equipment for \$150 on credit.
- (h) Returned equipment purchased for \$50 on credit.
- (i) Paid \$100 for advertising expenses.
- (j) Paid \$500 for rent of office building.
- (k) Received \$50 from a customer on his accounts receivable.
- (l) Paid \$100 to a creditor to discharge an accounts payable.
- (m) Paid \$25 for telephone expense.
- (n) Sold services on credit for \$400.
- (o) Paid monthly salaries, \$1 000.

(i) Set up an accounting equation with the following elements: Cash, Accounts Receivable, Bank Loan, Accounts Payable, J. Pitts, Capital, Revenue, and expense; then indicate what happens to the accounting equation as a result of each transaction.

(ii) Rearrange the final equation to illustrate the matching principle.

10. Suppose that you had sufficient funds to buy one of the two businesses offered for sale to you. You were given a seven-year summary of income information for both companies as given below.

	<u>Revenue</u>	<u>Expenses</u>	<u>Net Income (Loss)</u>
<u>Year 1</u>			
Co. A	\$ 90	\$ 100	\$(10)
Co. B	\$ 80	\$ 70	\$ 10
<u>Year 2</u>			
Co. A.	\$ 95	\$ 99	\$ (4)
Co. B.	\$ 82	\$ 75	\$ 7
<u>Year 3</u>			
Co. A.	\$100	\$ 95	\$ 5
Co. B.	\$ 85	\$ 80	\$ 5
<u>Year 4</u>			
Co. A.	\$110	\$100	\$ 10
Co. B.	\$ 90	\$ 84	\$ 6
<u>Year 5</u>			
Co. A.	\$130	\$115	\$ 15
Co. B.	\$100	\$ 90	\$ 10
<u>Year 6</u>			
Co. A.	\$150	\$130	\$ 20
Co. B.	\$110	\$ 95	\$ 15
<u>Year 7</u>			
Co. A.	\$170	\$130	\$ 40
Co. B.	\$120	\$100	\$ 20

0 Marks

Would you buy Company A or Company B. Give reasons for your answer.

Answer this question in paragraph form on foolscap. Marks will be rewarded for organization, content and style.

TO THE STUDENT:

The check mark indicates what you will do next.

_____ This was a post-test. Hand the test to your instructor for marking.

_____ Congratulations, you met the criteria for this topic. Ask your instructor for a pre-test for the next topic, "The Need for an Account."

_____ You did not meet the criteria. Make the necessary corrections and hand the corrected test to your instructor.

_____ Study your corrections. Once you feel confident that you know the material hand in your corrected form 2 test. Your instructor will either prescribe you another test or assign you exercises so that you can meet the criteria.

ACCOUNTING EQUATION MODULE

INSTRUCTOR'S MANUAL

Table of Contents

	<u>Page</u>
Textbook	1
Selection of Resources	1
Validity of the Module	2
Features of the Curriculum Package	2
Performance Objectives	2
Learning Tasks	2
Evaluation	3
Solutions to Learning Tasks	4
Task 4	4
Alternative Task 4	4
Task 5	4
Task 6	4
Task 6A	6
Task 7	7
Task 8	8
Task 9	9
Task 10	10
Task 11	13
Task 14	14
Task 15	17
Task 17	17
Task 16	18
Task 19	21
Task 20	22
Task 21	23
Task 22	24
Task 23	26
Task 23	27
Task 24	28
Prescribed Remedial Learning Tasks	30
Solutions to Pre-Tests and Post Tests	31
Test 1: The Accounting Equation (Form 1)	31
Test 2: The Accounting Equation (Form 2)	34

The Accounting Equation Module, which is based on the principles of individualized instruction and competency-based education, is designed for an introductory high school accounting course. Although there are many definitions for individualized instruction and competency based education, for the purpose of this module individualized instruction means that instruction is catered to the individual student, and competency-based education refers to the specification of learning tasks in measurable terms.

As the title suggests the conceptual framework for the module was the equation approach. Therefore the Accounting Equation Module represents the first five steps in the teaching of the accounting cycle using the equation approach.

Textbook

The Accounting Equation Module supplements the first two chapters in the grade eleven authorized textbook in the province of Manitoba. This textbook is Accounting: A Systems Approach (Toronto: McGraw-Hill, 1976) written by H. J. Kaluza. Although the teacher is provided with a teacher's manual for the Accounting Equation Module, the teacher may wish to write to McGraw-Hill in Scarborough, Ontario to purchase the manual for the authorized textbook. Study guides also accompany the text.

Selection of Resources

Most of the material developed in the Accounting Equation Module has been adapted from Kaluza's textbook. As a result, students are asked to refer to specific learning exercises and explanations in the textbook. Another source, which has been adapted for the module and uses the equation approach as its conceptual framework is Individualized Learning Guides

for Elements of Financial Records (New York: McGraw-Hill, 1977), written by David H. Weaver, J. Marshall Hanna, M. Herbert Freeman, Edward B. Brower, and James M. Smiley. Students are not given a copy of Individualized Learning Guides for Elements of Financial Records because any exercises which have been used in this module are printed directly from the source.

Copyright clearance was obtained from the authors and the publishing companies to enable the reproduction of the curriculum material for this module.

The writer wrote some of the material, and organized all of the material to illustrate the accounting concepts which are considered essential for an introductory high school accounting course.

Validity of the Module

A pre-test, post-test, module and accompanying solution manuals were sent to ten selected experts in education to evaluate the contents of the module. The final product is what is presented in this curriculum package. The author assumes full responsibility for any errors which may exist in the curriculum package. This curriculum package was a major requirement of the Master of Education Degree in Business Education at the University of Manitoba.

Features of the Curriculum Package

Performance Objectives : are stated in behavioral terms and specifies what learning tasks the students will complete. An 80% minimum mastery level has been set for each performance objective.

Learning Tasks: are exercises the students complete in the module. In addition to the required learning tasks there are alternative learning tasks.

*The curriculum package refers to the module and instructors solution manual, the accounting module test forms 1 and 2 and the solutions.

These alternative learning tasks require the student to complete additional tasks before continuing with the next performance objective. A student attempts an alternative learning task if he or she did not meet the criterion stated in the performance objective.

Evaluation: There are two forms of evaluation: formative evaluation and summative evaluation. The pre-test (accounting module test - form 1) and learning task exercises constitute the formative evaluation. Summative evaluation is determined by the post-test (accounting module test - form 1 if the criterion is met or accounting module test - form 2 if another test is needed to meet the criteria). Generally, an 80% mastery level has been set for the student's advancement.

The distribution of the marks for the financial statements would be: 20% for the heading; 60% for the body; and 20% for balancing.

On the short exercises one mark is allocated for each blank or calculation.

For those students who do not master the objective, this manual provides a list of remedial exercises from the textbook which can be assigned to the student so that he can master the objective.

In addition to the solutions for the learning task, this manual has solutions for the accounting equation module tests, forms 1 and 2.

TASK 4

\$ 14 000; \$ 5 000; \$ 6 800; \$ 800; \$ 110; \$ 80; \$ 1; \$ 12 000;
\$ 4 060; \$ 2 000

ALTERNATE TASK 4

\$ 400; \$ 1 500; \$ 440; \$ 1 800; \$ 2 800; \$ 16 200; \$ 11 400;
\$ 735; \$ 3 890.

TASK 5

1. Assets, Liabilities, Owner's Equity; 2. Asset; 3. Note
4. Accounts Receivable; 5. Cash; 6. Typewriters, Adding Machines,
Duplicating Machines, etc.; 7. Coins, Balance on Deposit
Currency, Money Order, Cheques awaiting deposit.
8. liability; 9. Creditor; 10. Assets; 11. Accounts Payable;
12. Bank Loan Payable; 13. Note Payable; 14. Liabilities; 15. Assets;
16. Equal; 17. Assets; 18. Assets; 19. Claims, Accounting Equation.

Land - Asset, Left Side

Equipment - Asset, Left Side

Cash in Bank - Asset, Left Side

Furniture - Asset, Left Side

Investment by Owner - Owners Equity, Right Side

Bank Loan - Liability, Right Side

Building - Asset, Left Side

Mortgage - Liability, Right Side.

TASK 6

1. Quick Foot Francis; 2. No. In accounting the business is separate
from the owner even if the owner, Quick Foot Francis put some of his
personal savings in the business. 3. \$ 20 000;

TASK 6 (Continued)

4. In simple terms the balance sheet reports the following debts: a bank loan of \$ 4 000, which must be considered as a debt payable on demand; accounts payable of \$ 3 000, which must be paid within a short period of time, such as 30, 60, or 90 days; and a mortgage payable of \$ 13.000, which must be paid over 20 years. To meet these short term debts of \$ 7 000 (bank loan plus accounts payable), the balance sheet reports cash of \$ 5 000. In addition the balance sheet identifies accounts recievable in the amount of \$ 3 000. Since the accounts receivable will be converted into cash within 30, 60, or 90 days, it seems fair to conclude that the business has the potential of \$ 8 000 to cover the short term debts totalling \$ 7 000. This fact would suggest that the business is in a satisfactory position to meet its short term obligations.

As for the position of the business to meet its long term debt, the 20 year mortgage payable, it may be stated that the firm has sufficient assets other than cash to carry on business. These assets, such as supplies, furniture, office equipment, and building will be used to allow the business to make money (profits) each year for the next 20 years to pay off the long term debt, mortgage payable. Of course, a more accurate analysis can only be made through a study of the firm's ability to make profits. This topic will be discussed later in this module.

5. No. The balance sheet does not report how much profits were made by the business. A balance sheet reports the assets and the claim against those assets as at a particular date. A statement of profits (to be discussed later in this module) is required to report how much profit was made by the business.

6. The words, as at, indicate the financial position of a business as at a particular date. The figures on the balance sheet are stated at the cost of acquisition.

Task 6 (Continued)

7. The word "Capital" in the expression "Quick Foot Francis, Capital" means that the owner has a claim against the assets through investment of personal savings and perhaps other assets. In accounting Capital means investment.

8. Yes, Dashing Joe Runner.

TASK 6A

1. Bob Buffer.

2. \$500.

3. No.

4. The short term debt of the business is an accounts payable in the amount of \$500. To meet this short term debt the business has \$750. The business is in a satisfactory position to pay off its debt. The business has no long term debt and the other assets suggest that the owner is in a strong financial position to carry out the daily operations of the business.

5. No. Vanish Car Wash is the accounting entity. In accounting, the business must be considered as being separated from the owner even though the owner has invested some of his personal savings in the business.

The Tortoise and Hare Delivery Service
Balance Sheet

As at December 31, 19

Assets		Liabilities	
Cash	500000	Bank Loan Payable	4000000
Accounts Receivable:		Accounts Payable:	
Dashing Joe Runner	3000000	Fast Freshwheeling Freddie	3000000
Furniture	9000000	Mortgage Payable (20yr):	
Building	11000000	Running Realty	13000000
Land	9000000	Total liabilities	16000000
		Owner's Equity	
		Perick Foot Firmies, Capital	17000000
Total	37000000	Total	37000000

Murray "Maga" Marvin's Auto Body Service
Balance Sheet

As at June 30, 1980

Assets		Liabilities	
Cash	2450.00	Bank Loan Payable	1500.00
Accounts Receivable:		Accounts Payable:	
Grest Overhead		Ron Rally	2000.00
Supplies	10000.00	Cameron Cars	1200.00
Office Equipment	6200.00	Total Liabilities	4700.00
Office Machines	2700.00		
		Owner's Equity	
		Murray Marvin, Capital	16950.00
Total	21650.00	Total	21650.00

Cool Cat's Concert Centre,
Balance Sheet

Asset May 31, 1981

Assets		Liabilities	
Cash	\$ 10400.00	Bank Loan Payable:	\$ 3000.00
Office Equipment	2000.00	Accounts Payable:	
Furniture	4000.00	Tacky Tape Supplies \$ 400.00	
		Friendly Furniture Co. \$ 1000.00	1400.00
		Total Liabilities:	\$ 4400.00
		Owner's Equity	
		Fast Out Joey Spacely, Capital	12000.00
Total	\$ 16400.00	Total	16400.00

TRANSACTIONS	Assets			equal	Liabilities		plus Owner's Equity
	CASH	ACCTS. REC.	EQUIP.		BANK LOAN PAYABLE	ACCTS. PAY.	
(2) Paid \$500 cash to acquire additional equipment.	\$10 500 + -500	\$500	+ \$13 000 +500	= (\$24 000)	\$2 000	+ \$2 000	+ \$20 000
(3) Bought additional equipment costing \$500 from Office Specialty on 60 days' credit.	\$10 000 +	\$500	+ \$13 500 +500	= (\$24 000)	\$2 000	+ \$2 000	+ \$20 000
(4) Returned one piece of equipment costing \$100 to Office Specialty because the equipment arrived in damaged condition.	\$10 000 +	\$500	+ \$14 000 -100	= (\$24 500)	\$2 000	+ \$2 500	+ \$20 000
	\$10 000 +	\$500	+ \$13 900	= (\$24 400)	\$2 000	+ \$2 400	+ \$20 000

TRANSACTIONS

(2) Paid \$500 cash to acquire additional equipment.

(3) Bought additional equipment costing \$500 from Office Specialty on 60 days' credit.

(4) Returned one piece of equipment costing \$100 to Office Specialty because the equipment arrived in damaged condition.

OTHER TRANSACTIONS (continued)	Assets			equal	Liabilities		Owner's Equity
	CASH	ACCTS. REC.	EQUIP.		BANK LOAN PAYABLE	ACCTS. PAY.	
	\$10 000	+ \$500	+ \$13 900	=	\$2 000	+ \$2 400	+ \$20 000
(5) Issued cheque for \$1 000 to J. Wood Co., a creditor.	-1 000			(\$24 400)		-1 000	
	\$ 9 000	+ \$500	+ \$13 900	=	\$2 000	+ \$1 400	+ \$20 000
(6) Mary Best, the owner, invested additional \$600 cash.	+600			(\$23 400)			+600
	\$ 9 600	+ \$500	+ \$13 900	=	\$2 000	+ \$1 400	+ \$20 600
(7) Mary Best withdrew \$1 000 cash as a permanent withdrawal from the business.	-1 000			(\$24 000)			-1 000
	\$ 8 600	+ \$500	+ \$13 900	=	\$2 000	+ \$1 400	+ \$19 600
				(\$23 000)			

TASK 11

ASSETS			=	LIABILITIES	+	OWNER'S EQUITY	Equality Check
Cash	Accounts Receivable	Furniture		Accounts Payable		Carl Case, Capital	A = L + CE
Begin. balance	\$ 6 000 +	\$ 500 +	=	\$ 1 500	\$ 600	\$ 7 400	\$8 000 = \$8 000
Trans. a	+100	-100					
New balance	\$ 6 100 +	\$ 400 +	=	\$ 1 500	\$ 600	\$ 7 400	8 000 = 8 000
Trans. b				+500			
New balance	\$ 6 100 +	\$ 400 +	=	\$ 2 000	\$ 1 100	\$ 7 400	8 500 = 8 500
Trans. c	-400				-400		
New balance	\$ 5 700 +	\$ 400 +	=	\$ 2 000	\$ 700	\$ 7 400	8 100 = 8 100
Trans. d	+1 300					+1 300	
New balance	\$ 7 000 +	\$ 400 +	=	\$ 2 000	\$ 700	\$ 8 700	9 400 = 9 400

-334-

ASSETS		LIABILITIES		OWNER'S EQUITY	
ACCTS.		BANK LOAN	ACCTS.	MARY BEST,	
CASH	REC.	PAYABLE	PAY.	CAPITAL	REVENUE
\$10 600	+ \$ 500	\$2 000	+ \$1 400	\$19 600	+ \$2 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000				+5 000	
\$10 600	+ \$5 500	\$2 000	+ \$1 400	\$19 600	+ \$7 000
=		=		=	
+5 000</					

FROM TRANSACTIONS (8) AND (9), REVENUE MAY BE DEFINED AS AN INFLOW OF CASH AND ACCOUNTS RECEIVABLE RESULTING FROM THE SALE OF SERVICES (AND GOODS) TO CUSTOMERS.

NOTE THAT REVENUE CAUSES AN INCREASE TO OWNER'S EQUITY, THAT IS, THE OWNER'S CLAIM AGAINST THE TOTAL ASSETS IS INCREASED AS A RESULT OF SALES OF SERVICES (OR OF GOODS).

Transaction (10): To obtain the \$7 000 revenue from sales of services during October, Office Services paid cash totalling \$3 100 as of October 31 for the following expenses: Rent, \$600; Salaries, \$2 400; Utilities, \$70; and Telephone, \$30.

<u>ASSETS</u>		=	<u>LIABILITIES</u>		+	<u>OWNER'S EQUITY</u>	
ACCTS.			BANK LOAN	ACCTS.		MARY BEST,	
CASH	REC. EQUIP.		PAYABLE	PAY.		CAPITAL	REVENUE EXPENSE
\$10 600 + \$5 500 + \$13 900	=		\$2 000 +	\$1 400 +		\$19 600 +	\$7 000
(10) -3 100							-3 100
\$7 500 + \$5 500 + \$13 900	=		\$2 000 +	\$1 400 +		\$19 600 +	\$7 000 - \$3 100
\$26 900	=		\$3 400			\$23 500	

ANALYSIS:

- 1 WHEN A BUSINESS INCURS EXPENSES AND PAYS CASH FOR THEM, THE LEFT SIDE OF THE EQUATION IS DECREASED BY THE AMOUNT OF THE PAID EXPENSES.
- 2 THE RIGHT SIDE OF THE EQUATION MUST ALSO BE DECREASED BY A SIMILAR AMOUNT.
- 3 SINCE LIABILITIES ARE NOT AFFECTED BY THE CASH TRANSACTION, THEN EXPENSES UNDER OWNER'S EQUITY CAUSES OWNER'S EQUITY TO DECREASE. (NOTE THAT EXPENSES ARE NOT GOING DOWN: EXPENSES CAUSE A DECREASE TO THE OWNER'S CLAIM AGAINST TOTAL ASSETS.)

Transaction (11): At the end of October, Office Services received a bill for \$900 from City News, a local newspaper, for running several advertisements during October. The bill allows Office Services a period of 30 days in which to pay for the advertising.

ASSETS		=	LIABILITIES		+	OWNER'S EQUITY	
Accts. Rec.	Equip.		Bank Loan Payable	Accts. Pay.		Mary Best, Capital	Revenue Expenses
\$7 500 + \$5 500 + \$13 900		=	\$2 000 +	\$1 400	+	\$19 600	\$7 000 - \$3 100
				+ 900			- 900
\$7 500 + \$5 500 + \$13 900		=	\$2 000 +	\$2 300	+	\$19 600	\$7 000 - \$4 000
\$26 900		=	\$4 300		+		\$22 600

(11)

ANALYSIS:

- 1 THE BUSINESS INCURRED AN ADVERTISING EXPENSE THROUGH A CREDIT TRANSACTION; THEREFORE, THE LEFT SIDE OF THE EQUATION IS NOT AFFECTED.
- 2 LIABILITIES MUST BE INCREASED BY \$900 BECAUSE THE FIRM HAS MORE ACCOUNTS PAYABLE TO PAY WITHIN 30 DAYS. THE CREDITORS HAVE NOW INCREASED THEIR CLAIM AGAINST TOTAL ASSETS.
- 3 THE EXPENSE INCURRED (ADVERTISING EXPENSE IN ORDER TO GENERATE REVENUE) IS SHOWN AS A SECOND DECREASE TO OWNER'S EQUITY UNDER THE SUBHEADING "EXPENSES". NOTE THAT THE TWO EXPENSES ARE ADDED TOGETHER TO SHOW A TOTAL DECREASE TO OWNER'S EQUITY RESULTING FROM EXPENSES.
- 4 THE INCREASE IN LIABILITIES IS NOW OFFSET BY THE DECREASE IN OWNER'S EQUITY; THEREFORE, THE ACCOUNTING EQUATION WILL BALANCE.

TASK 15

1. Revenue; 2. Increase; 3. Owner's Equity; 4. Revenue;
5. Assets, Owner's Equity, Increase;
6. Assets, Owner's Equity, Increase;
7. Capital;
8. Assets;
9. Expenses;
10. Net Income, Net Loss; 11. Net Income; 12. Net Loss;
13. Assets, Owner's Equity, Decrease; 14. Revenue, Expenses.
15. Liabilities, Owner's equity, liabilities, owner's equity.

TASK 17

	<u>Word Circled</u>	<u>Answer</u>
1.	plus	minus
2.	income statement	balance sheet
3.	How	What
4.	balance sheet	income statement
5.	balance sheet	income statement
6.	calendar	fiscal
7.	balance sheet	income statement
8.	income statement	balance sheet

ASSETS				=	LIABILITIES		+	OWNER'S EQUITY		
	Cash	Accts. Rec.	Equip.		Bank Loan	Accts. Pay.		J. Pitts, Capital	Revenue	Expense
rans. (i)	\$5 000	+	\$ 0	+	\$7 000	=	\$3 000	+	\$ 0	- \$ 0
ew balance	\$5 000	+	\$ 0	+	\$7 000	=	\$3 000	+	\$ 0	- \$ 0
rans. (ii)	+300								+300	
ew balance	\$5 300	+	\$ 0	+	\$7 000	=	\$3 000	+	\$ 300	- \$ 0
rans. (iii)	-1 000				+1 000					
ew balance	\$4 300	+	\$ 0	+	\$8 000	=	\$3 000	+	\$ 300	- \$ 0
rans. (iv)	-1 000				-1 000					
ew balance	\$3 300	+	\$ 0	+	\$8 000	=	\$2 000	+	\$ 300	- \$ 0
rans. (v)		+200							+200	
ew balance	\$3 300	+	\$ 200	+	\$8 000	=	\$2 000	+	\$ 500	- \$ 0
rans. (vi)	+75								+75	
ew balance	\$3 375	+	\$ 200	+	\$8 000	=	\$2 000	+	\$ 575	- \$ 0
rans. (vii)			+150							
ew balance	\$3 375	+	\$ 200	+	\$8 150	=	\$2 000	+	\$ 575	- \$ 0
rans. (viii)			-50							
ew balance	\$3 375	+	\$ 200	+	\$8 100	=	\$2 000	+	\$ 575	- \$ 0

-339-

-339-

(continued on next page)

	ASSETS			LIABILITIES		+	OWNER'S EQUITY		
	Cash	Accts. Rec.	Equip.	Bank Loan	Accts. Pay.		J. Pitts, Capital	Revenue	Expense
Prev. bal.	\$3 375	+ \$ 200	+ \$8 100	=	\$2 000	+ \$ 100	+ \$9 000	+ \$ 575	- \$ 0
Trans. (ix)	-100								-100
New bal.	\$3 275	+ \$ 200	+ \$8 100	=	\$2 000	+ \$ 100	+ \$9 000	+ \$ 575	- \$ 100
Trans. (x)	-500								-500
New bal.	\$2 775	+ \$ 200	+ \$8 100	=	\$2 000	+ \$ 100	+ \$9 000	+ \$ 575	- \$ 600
Trans. (xi)	+50	-50							
New bal.	\$2 825	+ \$ 150	+ \$8 100	=	\$2 000	+ \$ 100	+ \$9 000	+ \$ 575	- \$ 600
Trans. (xii)	-100					-100			
New bal.	\$2 725	+ \$ 150	+ \$8 100	=	\$2 000	+ \$ 0	+ \$9 000	+ \$ 575	- \$ 600
Trans. (xiii)	-25								-25
New bal.	\$2 700	+ \$ 150	+ \$8 100	=	\$2 000	+ \$ 0	+ \$9 000	+ \$ 575	- \$ 625
Trans. (xiv)		+400						+400	
New bal.	\$2 700	+ \$ 550	+ \$8 100	=	\$2 000	+ \$ 0	+ \$9 000	+ \$ 975	- \$ 625
Trans. (xv)	-1 000								-1 000
New bal.	\$1 700	+ \$ 550	+ \$8 100	=	\$2 000	+ \$ 0	+ \$9 000	+ \$ 975	- \$1 625

Special Note: Minus signs opposite each expense refer to the effect of the expense on OWNER'S EQUITY; they do not mean that expenses are going down. (Think of the various expenses as being minus factors which have to be added to obtain the total expense to be matched against the revenue.)

TASK 16

ASSETS		=	LIABILITIES		+	OWNER'S EQUITY								
Accts.			Bank	Accts.		J. Pitts,	+	\$ 975	Revenue					
Cash	Rec.	Equip.	Loan	Pay.		Capital	-	1 625	Expense					
Final bal.	\$1 700	+	\$550	+	\$8 100	=	\$2 000	+	\$ 0	+	\$9 000	-	\$ 650	Net Loss

Because there is an excess of Expense over Revenue in the matchup, the final result is a net loss. Another way to express this idea is that there is a greater minus quantity (expense) over the plus quantity (revenue); consequently, owner's equity is decreased as a result of the net loss.

-341-

Equality check:	A	=	L	+	OE
	\$10 350	=	\$2 000	+	\$8 350
	\$10 350	=			\$10 350

Suzuki Auto Repair

Income Statement

For the Month Ended July 31, 19--

REVENUE:				
Repair Service Revenue			\$3 875	00
EXPENSES:				
Wages Expense	\$1 350	00		
Rent Expense	300	00		
Advertising Expense	60	00		
Utilities Expense	50	00		
Repair Parts Expense	260	00		
Telephone Expense	15	00		
Miscellaneous Expense	20	00		
Total Expenses			2 055	00
NET INCOME			\$1 820	00

TASK 20

Paul Graham, M. D.

Income Statement

For the Month Ended November 30, 19--

REVENUE:				
Fees Earned			\$1 869	00
EXPENSES:				
Medical Supplies Expense	\$460	00		
Rent Expense	370	00		
Utilities Expense	43	00		
Salaries Expense	900	00		
Telephone Expense	18	00		
Total Expenses			1 791	00
NET INCOME			\$ 78	00

TASK 21

Circle Theatre
Income Statement

For the Year Ended December 31, 19--

REVENUE:				
Admissions Revenue	\$116 320 00			
Concessions Revenue	33 500 00			
Parking Fees Earned	12 300 00			
Total Revenue			\$162 120 00	
EXPENSES:				
Salaries Expense	\$ 88 635 00			
Insurance Expense	300 00			
Advertising Expense	240 00			
Telephone Expense	96 00			
Building Rent Expense	12 000 00			
Film Rental Expense	30 220 00			
Projection Rental Expense	600 00			
Utilities Expense	130 00			
Miscellaneous Expense	34 00			
Total Expenses			132 255 00	
NET INCOME			\$ 29 865 00	

ASSETS = LIABILITIES + OWNER'S EQUITY

Cash	Accts. Rec.	Furniture	Accts. Pay.	C. Case, Capital	Revenue	Expense
\$7 250	+ \$1 000	+ \$2 000	= \$ 750	+ \$8 700	+ \$1 500	- \$ 700

Case Service Company

Income Statement

For the Month Ended November 30, 19--

REVENUE:			
Sales		\$1 500 00	
EXPENSES:			
Advertising Expense	\$ 50 00		
Rent Expense	250 00		
Salaries Expense	400 00		
Total Expenses		700 00	
NET INCOME		\$ 800 00	

Case Service Company

Balance Sheet

November 30, 19--

ASSETS		LIABILITIES	
Cash	\$ 7 250 00	Accounts Payable:	
Accounts Receivable:		Pellizzari Equipment Co.	\$ 750 00
J. Brophy	\$400.00		
P. Calvert	600.00	OWNER'S EQUITY	
Furniture		C. Case, Capital	\$8 700.00
		Net Income	800.00
		Total Owner's Equity	9 500 00
Total	\$10 250 00	Total	\$10 250 00

OWNER'S EQUITY

Cash	Accts. Rec.	Furn.	Office Equip.	Bank Loan	Accts. Pay.	A. Macpherson Capital	Revenue	Expense
\$24 600 +	\$2 300 +	\$3 700 +	\$4 800 +	=	\$2 000 +	\$3 000 +	\$12 000 +	\$68 000 -
								\$49 600

Fredericton Travel Bureau

Income Statement

For the Year Ended May 31, 19--

REVENUE:				
Sales				\$68 000 00
EXPENSES:				
Salaries Expense	\$40 975 00			
Rent Expense	4 800 00			
Utilities Expense	925 00			
Telephone Expense	110 00			
Office Supplies Expense	1 830 00			
Advertising Expense	600 00			
Miscellaneous Expense	360 00			
Total Expenses				49 600 00
NET INCOME				\$18 400 00

Fredericton Travel Bureau

Balance Sheet

May 31, 19--

ASSETS		LIABILITIES	
Cash	\$24 600 00	Bank Loan	\$ 2 000 00
Accounts Receivable:		Accounts Payable:	
W. Beers \$600.00		Mersereau Furn. Co. \$1 700.00	
M. Englehart 900.00		Savage Office Supply 1 300.00	3 000 00
B. MacDonald 800.00	2 300 00	Total Liabilities	\$ 5 000 00
Furniture	3 700 00	OWNER'S EQUITY	
Office Equipment	4 800 00	A. MacPherson, Capital \$12 000.00	
		Net Income 18 400.00	
		Total Owner's Equity	30 400 00
Total	\$35 400 00	Total	\$35 400 00

TASK 24

- a) While the bank manager may have been impressed with Fred's estimate of his business, good banking practice requires that factual evidence be supplied to prove the reliability of granting a loan to any customer. In this case, the owner of the car rental company presented a statement of what he thought his business was worth. There is no indication that the owner supplied documents to support his claim; therefore, the banker is correct to ask for more financial information before granting the loan.
- b) Fred should have submitted an income statement and a balance sheet with his loan application. Ideally, he should have supplied a set of financial statements (income statement and balance sheet) for the last year of business, and a summary of net income for the past five years.
- c) The position of the business as to its ability to earn profits is a most important consideration before a decision is made to grant the loan. The balance sheet may show many assets to generate revenue, but the income statement may show a net loss. Unless the business is generating more revenue than incurring expenses, there is a great danger that the loan cannot be repaid.
- d) Two other factors may be considered by the bank manager. One is the credit reliability of the business as rated by a firm such as Dun and Bradstreet*. Another consideration is the extent of personal assets of the owner. If the business should be unable to pay its debts during the period of the bank loan, then the banker would want some additional protection. One additional protection would be the personal assets of the owner (single proprietor). For example, the banker may ask for the amount of paid-up life insurance and the amount of the owner's personal savings.

*Dun and Bradstreet - is a firm which provides a service for clients to determine the credit rating of a company.

TASK 24

- e) From the information given in the case, it would be fair to conclude that Fred should apply for the bank loan. The key point of information given is to identify the fact that Fred's business cannot meet the weekend demand for car rentals; therefore, Fred should borrow money to acquire additional cars to meet this heavy demand. It would be fair to conclude also that with the additional weekend revenue, the bank loan could be paid off within a reasonable time.

Prescribed Remedial Learning Tasks

All prescribed remedial learning tasks are taken from the textbook, H. J. Kaluza, Accounting: A Systems Approach (Toronto: McGraw-Hill, 1976). The solutions for these exercises can be located in the answer key which accompanies the textbook.

Alternative Learning Task 4: p. 8, problem 1-2.

Alternative Learning Task 5: p. 18, problem 3-2.

Learning Task 8: p. 19, problem 3-4.

Learning Task 9: p. 19, problem 3-5.

Learning Task 11: p. 27, problem 1-3.

Learning Task 12: p. 28, problem 1-5.

Learning Task 15: Have the student write out definitions for the following terms: business transaction; revenue; revenue and expense transactions, expired costs; matching principle; net income; net loss.

Learning Task 16: p. 37, problem 2-4.

Learning Task 17: Students are to complete the same remedial exercise as learning task 15 (see above).

Learning Task 20: Because learning tasks 19, 20, and 21 use the same principles, have the student master objective 20 again either by doing learning task 19 or learning task 20.

Learning Task 21: Assign either learning task 19, 20 or 21 as a remedial exercise. See notes on learning task 20.

Learning Task 22: p. 43, problem 3-6.

Learning Task 23: p. 43, problem 3-4 or p. 43, problem 3-6.

Learning Task 24: The purpose of the management case is to indicate how well a student can effectively argue for one side or another. Flexibility is needed in marking. For a remedial exercise, assign Case M-1 on page 21.

SOLUTIONS TO THE PRE-TESTS AND THE POST-TESTS

Test 1: The Accounting Equation (Form 1)

Part 1: Introducing the Accounting Equation

- 1 (a) assets; liabilities; owner's equity
 (b) Assets, liabilities; owner's equity.
 (c) assets
 (d) liabilities
 (e) owner's equity; economic resources or assets
 (f) balance; assets; liabilities; owner's equity
 (g) the balance sheet
 (h) balance sheet
 (i) balance sheet; who; what; when
 (j) assets; liquidity; assets
 (k) liabilities

(24 x 1/2 = 12 Marks)

2. OE = 14 000; L = 5 000; A = 6 800; OE = 800; OE = 110; L = 80;
 L = 1; OE = 12 000; OE = 2 000 (1 mark each plus 1 extra mark if
 the exercise is perfect = 10 Marks)

3 assets; liabilities; owner's equity

- (i) A; LS (ii) A; LS (iii) OE; RS (iv) L; RS (v) A; LS
 (vi) L; RS (1 Mark each for a total of 6 Marks)

4 (i)

Quality Typewriter Service
 Balance Sheet
 As at January 31, 1981

Assets		Liabilities	
Accounts Receivable	\$5 000	Accounts Payable:	
Office Equipment	2 000	James Murphy	\$2 000
Typewriter	400	A. Goodchild	<u>4 000</u>
			\$6 000
		Owner's Equity	
		Robert Hill, Capital	<u>1 200</u>
	<u>\$7 200</u>		<u>\$7 200</u>

(Test. Solutions)

Test 1: The Accounting Equation (Continued)

Form 1

4 (ii)

Superior Office Supplies
Balance Sheet
As at February 28, 1981

Assets		Liabilities	
Cash	\$1 000	Bank Loan	\$1 200
Accounts Receivable:		Accounts Payable:	
R. Muckle	700	National Supply Co.	<u>200</u>
Supplies	125	Total Liabilities	\$1 400
Equipment	5 000		
		Owner's Equity	
		Mary Talbot, Capital	<u>5 425</u>
Total	<u>\$6 825</u>	Total	<u>\$6 825</u>

Marking Scheme: 2 Marks for the Heading
 1 Mark for the order of Assets, Liabilities, and Owner's
 Equity for a total of 3 Marks
 1 Mark for Ruling.

Each Balance Sheet is worth 6 marks for a total of 12 for
 this question

Part 2: The Expanded Equation

- 5 (a) revenue
 (b) increase
 (c) left (assets); right (owner's equity)
 (d) assets (accounts receivable); owner's equity (revenue)
 (e) assets; liabilities and owner's equity
 (f) expenses
 (g) Expenses; revenue; net income; net loss
 (h) expense; assets (cash); owner's equity (expense)
 (i) owner's equity; revenue; expenses
 (j) expense; owner's equity; liability; liabilities; owner's equity.

(24 x 1/2 = 12 Marks)

6. Rent Expense - Income Statement; Total Sales - Income Statement;
 Office Equipment - Balance Sheet; Length of Accounting Period - Income
 Statement; Roy Bell, Capital - Balance Sheet; Revenue - Income Statement;
 Furniture - Balance Sheet; Utilities Expense - Income Statement

(1 Mark each for a total of 6 Marks)

(Test Solutions)

Test 1: The Accounting Equation (Continued)

Form 1

7.

	<u>A</u>	<u>L</u>	<u>OE</u>
1	+	+	0
2	-	0	-
3	+	0	+
4	-	0	-
5	+	+	0
6	+	0	+
7	-	-	0
8	-	-	0
9	-	0	-
10	0	+	-

1 Mark for each correct line = 10 Marks)

8. 1. 0; 2. \$10 000; 3. \$12 000; 4. \$56 500; 5. \$16 000; 6. \$30 000;
 7. \$32 000; 8. \$20 000; 9. \$18 000; 10. \$78 500

(1 Mark each = 8 Marks)

9.

Transactions	Explanation
A	Received \$300 cash from customers shown under Accounts Receivable.
B	Acquired equipment costing \$200 on credit.
C	Sold Services for \$400 on credit.
D	Paid \$600 cash for expenses.
E	Jane Hart, the owner, made an additional investment of \$800 cash.
F	Sold services for \$500 cash.
G	Returned Equipment costing \$200 to the creditor from which the equipment was originally acquired.
H	Paid \$200 cash to creditors.
I	Sold services for \$400 on credit.
J	Incurred \$600 of expenses through accounts payable.

(1 Mark each for each correct answer. 1 extra mark if perfect = 11 Marks)

SOLUTIONS TO THE ACCOUNTING EQUATION MODULE TEST (Form 2)

1. (1) Left; (2) \$10 000; (3) Right; (4) Who, What, When; (5) Right
(6) Liquidity; (7) Cost; (8) Owner's Equity; (9) Liabilities;
(10) Assets

(1 x 10 = 10 Marks)

2. (1) True; (2) True; (3) False; (4) True; (5) True; (6) False; (7) True;
(8) False (1 x 8 = 8 Marks)

3. (1) \$2 000; (2) \$15 000; (3) \$10 000; (4) \$42 000; (5) \$13 000

(1 x 5 = 5 Marks)

4. A - 1 Office Supply
Balance Sheet
As at December 31, 1980

Assets		Liabilities	
Cash	\$ 500	Accounts Payable	\$ 6 000
Accounts Receivable	5 000		
Office Equipment	2 000	Owner's Equity	
Tyewriter	400	Mel Sherbourne, Capital	4 900
Office Furniture	3 000		
Total	<u>\$ 10 900</u>	Total	<u>\$ 10 900</u>

Deluxe Travel Agency
Balance Sheet
As at December 31, 1980

Assets		Liabilities	
Cash	\$ 1 000	Bank Loan	\$ 1 200
Accounts Receivable:		Accounts Payable	<u>200</u>
R. Ritchie	300		\$ 1 400
R. Reed	600	Owner's Equity	
Supplies	125	Mary Shaw, Capital	5 625
Equipment	5 000		
Total	<u>\$ 7 025</u>	Total	<u>\$ 7 025</u>

Marking Scheme: 2 Marks for the Heading
1 mark for the order of A. L. OE. for a total of 3 Marks
1 mark for ruling

Each Balance Sheet is worth 6 marks for a total of 12 Marks

5. (1) increase; (2) increase; (3) increase; (4) decrease; (5) decrease;
(6) decrease; (7) increase; (8) decrease; (9) decrease; (10) decrease

(1/2 x 10 = 5 Marks)

Solutions to the Accounting Equation Module Test (Form 2)

6. (1) I; (2) I; (3) B; (4) B; (5) I; (6) I; (7) I; (8) B;
(9) B; (10) I; (11) B; (12) I; (13) B; (14) B; (15) B; (16) I

(1/2 x 16 = 8 Marks)

7.

	<u>A</u>	<u>L</u>	<u>OE</u>
1.	+	+	0
2.	-	0	-
3.	-	-	0
4.	-	-	0
5.	+	0	+
6.	-	0	-
7.	+	0	+
8.	-	0	-
9.	+	+	0
10.	+	0	+

(30 x 1/2 = 15 Marks)

8. (1) N.I. = \$1; (2) N.L. = (\$10 000); (3) E = \$12 000; (4) E = \$56 500;
(5) R = \$16 000; (6) R = \$30 000; (7) N.I. = \$32 000; (8) E = \$80 000;
(9) N.L. = (\$18 000); (10) R = \$78 500

(1 x 10 = 10 Marks)

9. See Attached page

Solutions to the Accounting Equation Module (Form 2)

Question 9

	ASSETS			LIABILITIES			OWNER'S EQUITY		
	Cash	Receivable	Equipment	Bank Loan	Payable	J. Pitts Capital	Revenue	Expenses	
Trans. (a)	\$5 000	+	\$7 000	+	\$ 0	+	\$ 0	-	\$ 0
New Balance	\$5 000	+	\$7 000	+	\$ 0	+	\$ 0	-	\$ 0
Trans (b)	+300						+300		
New Balance	\$5 300	+	\$7 000	+	\$ 0	+	\$ 300	-	\$ 0
Trans (c)	-1 000		+1 000						
New Balance	\$4 300	+	\$8 000	+	\$ 0	+	\$ 300	-	\$ 0
Trans (d)	-1 000			-1 000					
New Balance	\$3 300	+	\$8 000	+	\$ 0	+	\$ 300	-	\$ 0
Trans (e)		+200					+200		
New Balance	\$3 300	+	\$8 000	+	\$ 0	+	\$ 500	-	\$ 0
Trans (f)	+75						+75		
New Balance	\$3 375	+	\$8 000	+	\$ 0	+	\$ 575	-	\$ 0
Trans (g)			+150		+150				
New Balance	\$3 375	+	\$8 150	+	\$ 150	+	\$ 575	-	\$ 0
Trans (h)			-50		-50				
New Balance	\$3 375	+	\$8 100	+	\$ 100	+	\$ 575	-	\$ 0
Trans (i)	-100							100	
New Balance	\$3 275	+	\$8 100	+	\$ 100	+	\$ 575	-	\$ 100
Trans (j)	-500							-500	
New Balance	\$2 775	+	\$8 100	+	\$ 100	+	\$ 575	-	\$ 600
Trans (k)	+50		-50						
New Balance	\$2 825	+	\$8 100	+	\$ 100	+	\$ 575	-	\$ 600
Trans (l)	-100				-100				
New Balance	\$2 725	+	\$8 100	+	\$ 0	+	\$ 575	-	\$ 600
Trans (m)	-25							-25	
New Balance	\$2 700	+	\$8 100	+	\$ 0	+	\$ 575	-	\$ 625

Solution to Accounting Equation Module Test (Form 2)

Question 9 (Continued)

ASSETS			= LIABILITIES		+ OWNER'S EQUITY		
Accounts			Bank Loan		J. Pitts Capital		
Cash	Receivable	Equipment		Payable		Revenue	Expenses
Previous Balance	\$2 700 + \$ 150	+ \$8 100	= \$2 000	+ \$ 0	+ \$9 000	+ \$ 575	- \$ 625
Trans (n)	+400					+400	
New Balance	\$2 700 + \$ 550	+ \$8 100	= \$2 000	+ \$ 0	+ \$9 000	+ \$ 975	- \$ 625
Trans (o)	-1 000						-1 000
Final Balance	\$1 700 + \$ 550	+ \$8 100	= \$2 000	+ \$ 0	+ \$9 000	+ \$ 975	- \$1 625

Note: Minus signs opposite each expense refer to the effect of the expense on Owner's Equity; they do not mean that expenses are going down.

(Think of the various expenses as being minus factors which have to be added to obtain the total expense to be matched against the revenue.

Because there is an excess of Expense over Revenue in the matchup, the final result is a net loss.

FINAL EQUATION

ASSETS			= LIABILITIES		+ OWNER'S EQUITY		
\$1 700 + \$ 550	+ 8 100		\$2 000	+ \$0	\$9 000	+ \$975	- \$1 625
\$10 350			= \$2 000				\$8 350
\$10 350			= \$10 350				

Marking Scheme: 1 Mark for each correct transaction

Solutions to the Accounting Equation Module Test (Form 2)

Question 10

An analysis of the seven-year summary of income information for Companies A and B may be offered as follows:

For Company A:

(i) Revenue has increased each year for all seven years. There has been approximately a 90% increase in revenue in the seventh year compared with the first year.

(ii) Expenses have decreased slightly for two years, while increases were reported for the last three years. In percentage terms, there was an increase of only 30% in expenses in Year 7 compared with Year 1.

(iii) Except for the first two years, a steady increase in net income has been reported for five consecutive years. In percentage terms, net income has increased some 700% in Year 7 compared with Year 3.

For Company B:

(i) Revenue has increased each year for all seven years. There has been a 50% increase in revenue in Year 7 compared with Year 1.

(ii) Expenses have increased each year for all seven years. In percentage terms, there was an increase of approximately 85% in Year 7 compared with Year 1.

(iii) A net income has been reported for all seven years. For the first three years, net income decreased from \$10 000 to \$5 000, or some 100% in three years. Over the last four years, net income increased from \$6 000 to \$20 000, or slightly more than 200%. For an overall increase in seven years, net income doubled from \$10 000 to \$20 000, or 100%.

On the basis of comparing the revenue, expenses, and net income for the reported seven years, one may conclude that Company A has performed better; therefore, one would buy Company A over Company B.

A suggested marking scheme would be:

- 2 marks for the answer
- 4 marks for verifying your answer
- 2 marks for organization
- 2 marks for style

(Test Solutions)

The Accounting Equation (Continued)

Form 1

10

Rainbow Theatre
Income Statement
For the Year Ended December 31, 1980

Revenue

Admissions Revenue	\$11 632	
Parking Fees Earned	1 230	
Concessions Revenue	<u>3 350</u>	
Total Revenue		\$16 212

Expenses

Salaries Expense	\$ 8 863	
Advertising Expense	24	
Insurance Expense	30	
Telephone Expense	10	
Film Rental Expense	3 022	
Utilities Expense	13	
Projector Rental Expense	60	
Miscellaneous Expense	<u>5</u>	
Total Expenses		<u>12 027</u>
Net Income		<u>\$ 4 185</u>

- Marking Scheme:
- 3 Marks for the Heading Section.
 - 2 Marks for the Revenue Section.
 - 3 Marks for the Expenses Section.
 - 1 Mark for the Total and Rulings.
 - 1 Mark for appearance and form.

Total = 10 Marks

11.

1. No. A bank loan of \$5 000 would probably be awarded to Farrell's Stenographic Service only for the following reasons:
 - (i) The balance sheet for Al's Radio and T. V. Service reports that the firm has \$10 000 of available cash and accounts receivables with which to pay \$40 000 of short term debts. Therefore, the balance sheet shows that the firm is in a very poor financial position to pay off its debts.
 - (ii) Al Best, the owner of the business, has a weak claim on the total assets. Consequently, if his business failed, there would be little left in the way of assets to protect the interest of the banker.
 - (iii) On the other hand, Beverly Farrell's balance sheet reports a very good financial position as the ability of the business to pay off short term debts. The balance sheet reports a total of \$45 000 cash and accounts receivables to cover the total short term liabilities of only \$10 000. Furthermore, the owner has a strong equity claim

(Test Solutions)

Form 1

The Accounting Equation (Continued)

11 (Continued)

against the total assets. Therefore, Farrell's Stenographic Service has a better risk for granting a loan from a banker.

2. The Net Income or Net Loss would be included in the owner's equity section of the Balance Sheet and would indicate how well the business was performing its daily business transactions. Net Income would increase the flow of cash and receivables therefore these amounts would change the assets of the business. If a business sustained a net loss it would be very difficult to justify a loan and one would probably not be granted to a business which has reported a net loss.

If you had the net income and new figures for cash and accounts receivable the claims of the owner would be examined against the claims of creditors to see if a loan was feasible. The short term debts would be compared to the cash and accounts receivable of the business to determine if the business could pay its short term loan. The long term loan would also have to be judged before a loan was paid out.

The net income or net loss would give the banker one more variable from which to operate, however, much of the same type of analysis as question 1 would have to be determined to see if either business is granted a loan.

(These are only recommended answers. The teacher will have to judge each students answer individually to see if the main points are covered. A suggested marking scheme would be 4 marks for each of parts 1 and 2 and two marks for style. Total = 10 Marks)

BIBLIOGRAPHY

Books

- Atkinson, Richard C., ed. Computer Assisted Instruction: A Book of Readings. New York: Academic Press, 1969.
- Baird, J. Hugh. "Humanizing Individualized Instruction." In Individualized Instruction in Business Education: Position Papers. Business Education Invitational Forum, Brigham Young University, 1975.
- Bakimis, William A. "A Multimedia Model for Total Self-Instructional Systems." In Individualized Instructional Systems for Vocational and Technical Education: A Collection of Readings. Edited by Nevin R. Frantz. Athens, Georgia: Vocational Instructional Systems, 1974.
- Binnion, John E. and Thomas, Edward G. "Evaluating Instructional Objectives in Recordkeeping, Bookkeeping, Accounting." Evaluation and Accountability in Business Education in Yearbook No. 18 of the National Business Education Association. Reston, Virginia, 1978.
- Bjorkquist, David. "What Vocational Education Teachers Should Know About Individualized Instruction." In Individualized Instructional Systems for Vocational and Technical Education: A Collection of Readings. Edited by Nevin R. Frantz. Athens, Georgia: Vocational Instructional Systems, 1974.
- Block, James H. and Anderson, Lorin W. Mastery Learning in Classroom Instruction. New York: MacMillan Publishing Co., 1975.
- _____, ed. Mastery Learning: Theory and Practice. New York: Holt, Rinehart and Winston, 1971.
- Bloom, Benjamin S. "Mastery Learning." In Mastery Learning: Theory and Practice. Edited by James H. Block. New York: Holt, Rinehart and Winston, 1971.
- _____, ed. Handbook of Educational Objectives: The Classification of Educational Goals -- Handbook I -- Cognitive Domain. New York: Longman, 1956.
- _____. "Learning for Mastery." In Handbook on Formative and Summative Evaluation of Student Learning. New York: McGraw-Hill Publishing Company, 1971.
- _____, Hastings, Thomas J. and Madaus, George F. Handbook on Formative and Summative Evaluation of Student Learning. New York: McGraw-Hill Book Company, 1971.

- Bobbitt, J. F. The Curriculum. New York: Houghton Mifflin, 1918.
- _____. How to Make a Curriculum. New York: Houghton Mifflin, 1924.
- Boynton, Lewis D. Methods of Teaching Bookkeeping-Accounting. Cincinnati: Southwestern Publishing Co., 1970.
- Bruner, Jerome S. The Process of Education. New York: Random House, 1960.
- _____. Toward a Theory of Instruction. New York: W. W. Norton, 1966.
- Burns, Richard W. ed. Competency-Based Education: An Introduction. Englewood Cliffs, N. J.: Educational Technology Publications, 1972.
- _____. "Methods for Individualized Instruction." In Individualized Instructional Systems for Vocational and Technical Education. Edited by Nevin R. Frantz. Athens, Georgia: Vocational Instructional Systems, 1974.
- Chacon, Louis, and Jalowsky, Toby D. "Individualizing Business Education at the Secondary School Level." In Alternative Learning Styles in Business Education in Yearbook No. 17 of the National Business Education Association. Reston, Virginia, 1979.
- D'Amico, Victor and Obsawin, M. Basic Accounting. Toronto: Copp Clark, Pitman, 1978.
- Davies, Ivor K. Competency Based Learning: Technology, Management and Design. New York: McGraw-Hill, 1973.
- De Shaw, Byron L. Developing Competencies for Individualizing Instruction. Columbus, Ohio: C. E. Merrill Publishers, 1973.
- Douglas, Loyd V., Blanford, James T. and Anerson, Ruth I. Teaching Business Subjects. Third Edition. Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1973.
- Driska, Robert S. "Strategies for Evaluating Students." Evaluation and Accountability in Business Education in Yearbook No. 16 of the National Business Education Association. Reston, Virginia, 1978.
- Duane, James E., ed. Individualized Instruction: Programs and Materials. Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.

- Finch, Alton V. "Behavioral Analysis: Cognitive, Affective and Psychomotor Domains." Contributions of Research to Business Education in Yearbook No. 9 of the National Business Education Association. Reston, Virginia, 1971.
- Flanagan, John C. "Project Plan: Basic Assumptions, Implementation, and Significance." Individualized Instruction -- Programs and Materials. Edited by James E. Duane. Englewood Cliffs, New Jersey: Educational Technology Publications, Inc., 1973.
- Frantz, Nevin R. Jr. "The Development of Individualized Instructional Systems." In Individualized Instructional Systems for Vocational and Technical Education. Edited by Nevin R. Frantz. Athens, Georgia: Vocational Instructional Systems, 1974.
- _____, ed. Individualized Instructional Systems for Vocational and Technical Education. Athens, Georgia: Vocational Instructional Systems, 1974.
- _____. Individualized Instructional Systems for Vocational and Technical Education: A Series of Modules. Athens, Georgia: Vocational Instructional Systems, 1974.
- Gagné, Robert M., ed. Learning and Individual Differences. Columbus, Ohio: Charles E. Merrill Books, 1967.
- _____. "Curriculum Research and the Promotion of Learning." In Perspectives of Curriculum Evaluation. Edited by Robert Stake. Chicago, Illinois: Rand McNally, 1967.
- _____. The Conditions of Learning. Second Edition. New York: Holt, Rinehart, and Winston, 1970.
- _____. and Briggs, L. J. Principles of Instructional Design. New York: Holt, Rinehart and Winston, 1974.
- Gibbons, Maurice. Individualized Instruction: A Descriptive Analysis. New York: Teachers College Press, 1971.
- Glaser, Robert. Adaptive Education: Individual Diversity and Learning. New York: Holt, Rinehart and Winston, 1977.
- Good, Carter V., ed. Dictionary of Education. Third Edition. New York: McGraw-Hill Book Company, 1973.
- Gow, Doris T. Design and Development of Curriculum Materials. Pittsburgh: University Center for International Studies, University of Pittsburgh, 1976.

- Gronlund, Norman E. Stating Behavioral Objectives for Classroom Instruction. New York: MacMillan Publishing Co., 1970.
- _____. Preparing Criterion Referenced Tests for Classroom Instruction. New York: MacMillan Publishing Co., 1973.
- _____. Individualizing Classroom Instruction. New York: MacMillan Publishing Co., 1974.
- Hall, Gene E. and Jones, Howard L. Competency-Based Education: A Process for the Improvement of Education. Englewood Cliffs, New Jersey: Prentice Hall Inc., 1976.
- Harrison, Wayne J. Jr. "Learning Activity Packages: An Innovative Approach to Distributive Education." In Individualized Instructional Systems for Vocational and Technical Education. Edited by Nevin R. Frantz. Athens, Georgia: Vocational Instructional Systems, 1974.
- Hedges, William. Change in Innovation in Elementary and Secondary Organization. Edited by Maurice Hillson and Ronald T. Hyman. Second Edition. New York: Holt, Rinehart and Winston, 1971.
- Hennington, Jo Ann. "Strengths and Weaknesses of Behavioral Objectives." Evaluation and Accountability in Business Education in Yearbook No. 16 of the National Business Education Association. Reston, Virginia, 1978.
- Jenkins, James L. "Individual Learning Differences in Verbal Learning." In Learning and Individual Differences. Edited by Robert M. Gagné. Columbus, Ohio: Charles E. Merrill, 1967.
- Johnson, Stuart R. and Johnson, Rita B. Developing Individualized Instructional Material: A Self-Instructional Material in Itself. Palto Alto, California: Westinghouse Learning Press, 1970.
- Jorgensen, Carl E. and Schmidt, June. "Developing Competency-Based Objectives and Evaluation Methods." Updating Content in Secondary Business Education in Yearbook No. 19 of the National Business Education Association. Reston, Virginia, 1981.
- Kaluza, Henry J. Accounting: A Systems Approach. Toronto: McGraw-Hill Ryerson Limited, 1976.
- Kapfer, Philip G. Learning Packages in American Education. Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.

- Klingstedt, Joe Lars. "Philosophical Basis for Competency-Based Education." In Competency-Based Education -- An Introduction. Edited by Richard W. Burns and Joe Lars Klingstedt. Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.
- Krathwohl, David R., Bloom, Benjamin S., and Masia, Bertram B. Taxonomy of Educational Objectives: The Classification of Educational Goals -- Handbook II -- Affective Domain. New York: David McKay Company, Inc., 1964.
- Kravas, Constance H. "The Theory of Behavioral Objectives." Evaluation and Accountability in Business Education in Yearbook No. 16 of the National Business Education Association. Reston, Virginia, 1978.
- Lindvall, C. M. and Cox, Richard C. "The Role of Evaluation in Programs for Individualized Instruction." Educational Evaluation: New Roles, New Means, the NSSE Sixty-Eighth Yearbook, pt. 2. Chicago, Illinois: University of Chicago Press, 1969.
- Little, Gloria R. "Individualizing Business Education Instruction: At the Two Year College Level." Alternative Learning Styles in Business Education in Yearbook No. 17 of the National Business Education Association. Reston, Virginia, 1979.
- Mager, R. F. Preparing Instructional Objectives. Belmont, California: Fearon Publishers, 1962.
- Maltzman, Irving. "Individual Differences in Attention: The Orienting Reflex." In Learning and Individual Differences. Edited by Robert M. Gagné. Columbus, Ohio: Charles E. Merrill Books, 1967.
- Mayhew, Katherine C. and Edwards, Anna C. The Dewey School. New York: Appleton-Century-Crofts, 1936.
- Mayo, Douglas. "Individualized Instruction: Concepts and Measurements." In Individualized Instructional Systems for Vocational and Technical Education. Edited by Nevin R. Frantz. Athens, Georgia: Vocational Instructional Systems, 1974.
- Meigs, Walter B., Johnson, Charles E., and Blazouske, J. David. Accounting: The Basis for Business Decisions. Toronto: McGraw Hill Ryerson Limited, 1964.
- Nicholls, Audrey and Nicholls, S. Howard. Developing a Curriculum: A Practical Guide. London: George Allen Unwen, 1978.

Policies Commission for Business and Economic Education. "This We Believe About Implementing Individualization of Instruction for Business Education." In Policies Commission for Business and Economic Education 1959-1979. Edited by Hobart H. Conover, Adele F. Schrag, and Eugene D. Wyllie. Reston, Virginia: National Business Education Association, 1980.

. "This We Believe About Competency-Based Education." In Policies Commission for Business and Economic Education 1959-1979. Edited by Hobart H. Conover, Adele F. Schrag, and Eugene D. Wyllie. Reston, Virginia: National Business Education Association, 1980.

Popham, Estelle L., Schrag, Adele F. and Blockhus, Wanda. A Teaching Learning System for Business Education. New York: Gregg Division of McGraw-Hill Book Company, 1975.

Powell, William R. "The Background of Individual Differences." In Perspectives in Individualized Learning. Edited by Robert A. Weisgerber. Itasca, Illinois: F. E. Peacock Publishers, Inc., 1971.

Pucel, David J. Individualizing Vocational and Technical Instruction. Columbus, Ohio: Merrill Publishers Inc., 1975.

Russell, James D. Modular Instruction: A Guide to the Design, Selection, Utilization and Evaluation of Modular Materials. Minneapolis: Burgess Publishing Company, 1974.

Scanlon, Robert C. "Individually Prescribed Instruction: A System of Individualized Instruction." In Individualized Instruction -- Programs and Materials. Edited by James E. Duane. Englewood Cliffs, New Jersey: Educational Technology Publications, 1971.

Schmidt, June. "The Teaching of High School Accounting, Bookkeeping and Recordkeeping." Contributions of Research to Business Education in Yearbook No. 9 of the National Business Education Association. Reston, Virginia, 1971.

Schrag, Adele, F. "The Status of Behavioral Objectives in Business Education." Evaluation and Accountability in Business Education in Yearbook No. 16 of the National Business Education Association. Reston, Virginia, 1978.

Scriven, Michael, "The Methodology of Evaluation." In Perspectives of Curriculum Evaluation. Edited by Robert Stake. Chicago, Illinois: Rand McNally, 1967.

Search, Preston W. An Ideal School, or Looking Forward. New York: Appleton-Century-Crofts, 1936.

- Sheahan, Patrick H. and Brown, Kenneth W. "Two Models of Competency-Based Business Teacher Education Programs." Curriculum Development in Education for Business in Yearbook No. 15 of the National Business Education Association. Reston, Virginia, 1977.
- Smith, Lucille W. and Kapfer, Philip G. "Classroom Management of Learning Package Programs." In Individualized Instructional Systems for Vocational and Technical Education. Edited by Nevin R. Frantz. Athens, Georgia; Vocational Instructional Systems, 1974.
- Smith, Karl U. and Smith Margaret F. "Learning Theory for the Improvement of Instruction in Business Education." Contributions of Research to Business Education in Yearbook No. 9 of the National Business Education Association. Reston, Virginia, 1971.
- Teske, Philip R. "Designing Vocational Curricula for the Individual." In Individualized Instructional Systems for Vocational and Technical Education. Edited by Nevin R. Frantz. Athens, Georgia: Vocational Instructional Systems, 1974.
- Torshen, Kay P. The Mastery Approach to Competency-Based Education. New York: Academic Press, 1977.
- Tuckman, Bruce W. "The Student Centered Curriculum: A Concept in Innovation." In Individualized Instructional Systems for Vocational and Technical Education. Edited by Nevin R. Frantz. Athens, Georgia: Vocational Instructional Systems, 1974.
- Tyler, Ralph W. Basic Principles of Curriculum and Instruction. Chicago: University of Chicago Press, 1950.
- Weaver, David J., Hanna, Marshall, Freeman, Herbert M, Brower, Edward B., and Smiley, James M. Accounting 10/12. Third Edition. New York: McGraw-Hill Book Company, 1977.
- Weisgerber, Robert A., ed. Perspectives in Individualized Learning. Itasca, Illinois: F. E. Peacock, 1971.
- Wood, Merle W. "Preparation of Individualized Instructional Materials." In Individualized Instruction in Business Education: Position Papers. Business Education Invitational Forum, Brigham Young University, 1975.

Professional Journals

- Babcock, Coleen. "Balancing Out the Accounting Program." Business Education Forum (December 1979).
- Barrett, Evelyn C. "Enliven Your Classroom with Accounting Rotation Plan." Business Education Forum (February 1981).
- Bishop, Lloyd K. "Individualizing Educational Programs." Business Education Forum (May 1971).
- Blume, Donald. "Modular Schedule at a Two-Year High School." Business Education Forum (May 1971).
- Bowman, Betty R. "Video-Tutorial Approach to Accounting." Business Education Forum (May 1971).
- Brown, Kenneth W. "Competency-Based System for Accounting Instruction." Business Education Forum (April 1977).
- Carroll, John B. "A Model for School Learning." Teacher's College Record 64 (1963).
- Clayton, Dean and Moles, Louis. "Evaluation in Individualized Instruction." Business Education Forum (December 1971).
- _____ and Brooke, Joyce Ann. "Pre-Class Planning for Individualized Accounting Instruction." Journal of Business Education (March 1974).
- Colen, Steven. "The Cyclical Relationship Approach in Teaching Basic Accounting Principles." Business Education Forum (March 1981).
- D'Amico, Bictor. "Individualized Learning in Accounting." The Manitoba Spectra Vol. VII No. 1 (January 1980).
- Dover, Neal B. "Individualized Instruction Offers a Challenge." Business Education Forum (December 1970).
- Eash, Maurice J. "Developing an Instrument for Assessing Instructional Materials." Curriculum Theory Network Monograph Supplement Curriculum Evaluation: Potentiality and Reality No. 8-9 (1971-1972).
- Erickson, Lawrence W. "Competency-Based Business Education." NABTE Review 5 (1978).
- Forr, William A. and Yerkes, Lester M. "Modularizing Distributive Education." Business Education Forum (May 1971).

- Garrison, Lloyd L. "Round-Up Time in Accounting." Business Education Forum (February 1980).
- _____. "Individualizing Accounting Instruction," Journal of Business Education (December 1976).
- Gibbons, Maurice. "What is Individualized Instruction?" Interchange 1:2 (1970).
- Glick, I. D., Henning, M. J. and Johnson, J. R. "How to Prevent a Second Orthodoxy." Educational Technology (August 1975).
- Graham, John E. "Competency-Based Accounting Instruction." Journal of Business Education (January 1977).
- Heathers, Glen. "A Working Definition of Individualized Instruction." Educational Leadership 34 (February 1977).
- Howson, R. H. "Performance-Based Instruction." Today's Education (August 1972).
- Huffman, Harry. "Using Principles of Programmed Instruction." Business Education Forum (December 1971).
- Kaluza, Henry. "Introducing Accounting Through the Equation Approach." Direction Vol 4 Number 2 (Fall 1975).
- Madsen, Russell D. "Update Instruction with Problem Solving." Business Education Forum (December 1971).
- McArdle, Richard J. and Moskovis, Michael L. "Developing Instructional Systems." The Balance Sheet 43 (February 1972).
- Schneider, A. A. "Profile of the States in Competency-Based Teacher Education." Performance-Based Teacher Education 3 (1974).
- Schooley, Shirley. "Review of Research on Individualized Instruction in Nonskill Business Subjects." Business Education Forum (January 1976).
- Spady, William C. "Competency-Based Education: A Bandwagon in Search of a Definition." Educational Researcher (January 1977).
- Speer, Charles C. "An Experiment in Individualized Instruction." Business Education Forum 27 (December 1971).
- Washburne, D. W. "Educational Measurements and a Key to Individualizing Instruction and Promotion." Journal of Educational Research 5 (1922).

- Weber, Edwin J., and Blumhagen, Elayne. "Individualized Book-keeping Instruction." Journal of Business Education (June 1974).
- White, Kathryn. "Review of REsearch on Individualized Instruction in Business Skill Subjects." Business Education Forum (January 1976).
- Wiley, W. D. "Flexible Scheduling -- Some Considerations." Business Education Forum (May 1971).
- Williams, John. "Mastery Learning in Business Education." NABTE Review Issue No. 4 (1977).

Unpublished Dissertations

- Cloud, Charles D. "An Experimental Study Comparing the Effectiveness of Programmed Instruction and the Conventional Method of Teaching First Semester Principles of Accounting." Ph.D. dissertation, Arizona State University, 1971.
- Glover, Mildred W. "An Experiment in the Use of Programmed Instruction in Elementary College Accounting." Ph.D. dissertation, Elizabeth City State University, 1972.
- Graham, John Edward. "A Process for the Design of Individualized Units Implemented in a Competency-Based Learning System for Accounting." Ph.D. dissertation, University of Pittsburgh, 1975.
- Hileman, Ronald I. "An Analysis of Selected Factors Related to Success in the Study of First Semester College Accounting." Ph.D. dissertation, University of Pittsburgh, 1972.
- Humbarger, George L. "The Influence of Teaching Methods and Textbooks on Student Rate and Quality of Achievement in Bookkeeping." Ph.D. dissertation, Indiana State University, 1969.
- Huston, Gerald D. "An Analysis of Programmed Instruction and Testing of a Programmed Unit for High School Bookkeeping." Ph.D. dissertation, University of Iowa, 1966.
- Orefice, Domenic S. "An Experiment to Determine the Effectiveness of Programmed Instruction in Elementary Accounting." Ph.D. dissertation, Rutgers University, 1971.
- Prickett, Gary I. and Butts, Eugene F. "The Effect of Audio-Tutorial and Programmed Laboratories on Achievement in Accounting Principles." Ph.D. dissertation, University of Northern Colorado, 1968.

Singer, Frank A. "Self Instructional Materials for Topics in Elementary Accounting -- A Means to the Demonstration of Payoffs from Individualizing Time to Complete Final Report." Ph.D. dissertation, Amherst University, 1972.

Other Publications

Casey, John. "Indidualization: What's It All About?" Paper presented at the CABET Conference, 1975.

Connolly, John J. and Sepe, Thomas. "Do Students Want Individualized Instruction?" Los Angeles, California: Clearing House for Junior College Information, 1972.

Cronbach, Lee J. and Snow, P. E. "Individual Differences in Learning Ability as a Function of Instructional Variables, Final Report." Stanford University, School of Education, 1969.

Evans, Clarence. "Individualized Instruction Versus Traditional Group Instruction." Unpublished Master's Paper, University of Pittsburgh, 1970.

Hathaway, W. E. "Competency-Based Education: Issues and Implications for Cooperation Across Educational Institutions and Levels." Unpublished Paper, Salem, Oregon, 1976.

National Schools Public Relations Association. "Individualization in Schools." Washington, D. C., 1971.

Ontario Ministry of Education. "Accounting AC 550 Correspondence Course." Written and compiled by Henry Kaluza, Bryan Mooney, Andrea Hovell, Lynn Tabaska, and Patrick Warwick. 1980.

Simpson, Elizabeth. "Taxonomy of Educational Objectives for the Psychomotor Domain." Unpublished paper delivered at the University of Illinois in Urbana, 1966.

Vocational-Technical Education Consortium of the States. "A Catalog of Performance Objectives, Criterion Referenced Measures and Performance Guides." State of Alabama, Department of Education, 1978.

Wang, Margaret C., Resneck, Lauren B. and Shuetz, Patrica. "PEP in the Frick Elementary School: Interim Evaluation of the Primary Education Project." University of Pittsburgh, Learning Research and Development Centre, Working Paper, No. 57, 1970.

VITAE

November 25, 1948	Born: Bolton, England
June 1968	Graduated from York Mills Collegiate, Don Mills, Ontario
Sept. 1968 - Dec. 1969	Mail Clerk, Borden Co. Ltd., Don Mills, Ontario.
Jan. 1970 - Aug. 1971	Accounting Trainee, Northern Life Assurance Co., London, Ontario
Sept. 1969 - Aug. 1971	Completed one year of R. I. A. (Registered Industrial Accountants) Program Completed one year of L. O. M. A. (Life Office Management Association) Program
Sept. 1971 - Apr. 1974	Bachelor of Arts (History), University of Western Ontario, London, Ontario
Sept. 1974 - Apr. 1975	Qualifying year for Honours Standing (History), University of Western Ontario, London, Ontario
Sept. 1975 - Apr. 1976	Bachelor of Education (History and Business Education), Althouse College of Education, University of Western Ontario, London, Ontario
Sept. 1976 - June 1977	Substitute Teacher (History and Business Education), Board of Education for the City of London, London, Ontario
Sept. 1977 - June 1979	Business Education Teacher (Grades 10 - 12), Peguis Central School, Hodgson, Manitoba
Sept. 1979 - June 1980	Sabbatical Leave
Sept. 1980 - Oct. 1980	Business Education Teacher (Grades 10 - 12), Peguis Central School, Hodgson, Manitoba
Nov. 1980 - Present	Adult Education Instructor, Peguis School Board
1981	Master of Education Degree, University of Manitoba, Winnipeg, Manitoba. Area: Business Education