

THE PRODUCTION AND EVALUATION OF
"AN INTRODUCTION TO FOREIGN EXCHANGE":
A SELF-INSTRUCTIONAL, CRITERION-REFERENCED,
ADJUNCTIVE TRAINING PROGRAM

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A
THESIS-EQUIVALENT
IN THE
DEPARTMENT OF
EDUCATION

Presented in Partial Fulfillment of the Requirement for the
degree of Master of Arts in Educational Technology at Concordia
University, Montreal, Quebec, Canada.

April, 1983

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TABLE OF CONTENTS

ABSTRACT.....	iv	
I. INTRODUCTION		
1.1 Background Information.....	1	
1.2 Context of Problem.....	4	
1.3 Statement of Problem.....	5	
1.4 Review of Literature.....	5	
1.5 The Objectives.....	13	
1.6 Rationale for Objectives.....	13	
1.7 Significance of the Study.....	14	
II. PROCEDURES		
2.1 Samples of Population Who Used the Program.....	16	
2.2 Some Problems Encountered in Obtaining Data....	17	
2.3 Variables.....	18	
2.4 Software Production		
2.4.1 General Learning Objectives.....	19	
2.4.2 Choice of Software/Hardware for Program.....	20	
2.4.3 Design of the Program.....	22	
2.4.4 The Pilot Program.....	24	
2.4.5 Production Notes.....	25	
2.5 Evaluation of Program.....	26	
III. RESULTS		
3.1 Objective 1.....	31	
3.2 Objective 2.....	35	
3.3 Objective 3.....	48	
IV. CONCLUSIONS AND DISCUSSION		
4.1 General Conclusions.....	53	
4.2 Discussion.....	53	
4.3 Summary.....	60	
V. BIBLIOGRAPHY AND REFERENCES.....		66
APPENDICES		
A. Hardware and Software Selection Matrices.....	69	
B. Validation Questions for Developmental Test.....	72	
C. Participant's Opinion Questionnaire.....	75	

ABSTRACT

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THE PRODUCTION AND EVALUATION OF "AN INTRODUCTION TO FOREIGN EXCHANGE": A SELF-INSTRUCTIONAL, CRITERION-REFERENCED, ADJUNCTIVE TRAINING PROGRAM

This training program, developed for The Royal Bank of Canada, has been studied by international bankers from six target populations.

A modular, self-instructional, workbook format permits trainees to study at their own pace. The objectives specify the knowledge and skills the trainee acquires from the adjunctive-learning materials (excerpts from textbooks, journal articles, films, text, 35mm slides and cassette tapes). The print and audio-visual media are passive carriers that transmit information and provide active practice and feedback by means of pretest and criterion posttests.

One of the objectives of this study was to ascertain if 80% of the trainees scored 100% on the posttests, thereby indicating that they had mastered the general learning objectives. By means of item analysis of the pretest and criterion posttests, it was determined that 82.9% of the trainees scored 100% on the posttests. 72.9% of the trainees increased their knowledge from pretests to posttests. The item analysis also identified those criterion tests which were too easy or were designed inappropriately for the population studying this program.

The Participant's Opinion Questionnaires evaluated the content, instructional methodology, trainees' attitudes, trainees' expectations, and course environment, so that the course could be improved in future revision cycles. This was another objective of this study.

A third objective of the study was to determine if this new training program was more cost-effective than the on-the-job training it replaced. It was learned that this self-instructional, criterion-referenced, adjunctive program saved \$44,876. for 50 trainees in the first year, over the annual cost of the conventional, on-the-job training formerly used. Furthermore, the program was cost-effective in other unanticipated ways.

I. INTRODUCTION

1.1 Background Information

In 1976, the Managers of International Training, International Money Markets, and Montreal International Center of The Royal Bank of Canada expressed a need for a foreign exchange training program. The Training and Education Department was requested to conduct an analysis to determine the content of the course, and then to develop the training materials.

The Training and Education Department had two sections: Analysis and Design and Development. These sections worked quite independently of one another and there was little coordination and liaison between them. A Training Analyst, from the Analysis section, was assigned to determine the content of the training program. The Training Analyst had no education or experience in training or instructional design, but did have some knowledge of foreign exchange, having completed the International Management Development Training Program at the bank. The Training Analyst identified topics for the program and generated a content outline for each topic. These were presented to subject matter experts in International Money Markets who rated the topics according to their importance to understanding foreign exchange. The ratings were consolidated and each topic assigned a priority from

low to high. The Training Analyst then proceeded to develop the teaching points for each topic. The lists of teaching points were reviewed for accuracy by appropriate subject matter experts.

When the analysis phase was completed, a Training Specialist (the author) from the Design and Development section was assigned to the project. Up until that time, the Training Specialist has not been involved in the project. Upon undertaking the design and development process, the Training Specialist reviewed the analytical procedures, studied the content, the population, the environment, the resources, and the constraints under which the training would be conducted. As a result of this review, it became apparent that the analysis phase had not been conducted correctly. The author learned that there would be six different international banking groups which would use the program. These groups had different job responsibilities and were located worldwide. The common bond was that they needed a basic knowledge of foreign exchange. This "basic" knowledge was the teaching points listed by the Training Analyst. No other learning objectives had been identified - either general or specific.

It should be mentioned that by the time the design phase was underway that the Training and Education Department became users of Robert Mager's Criterion-Referenced Instruction course (CRI). All the Training Analysts and Training Specialists were required to go to this Workshop.

In addition, the Training Specialists were "strongly" encouraged to develop training programs which conformed to the CRI analysis and design specifications. The fact that the task analysis for this project did not provide specific learning objectives made this a difficult task to achieve. However, the Training Specialist and the Training Analyst attempted to remedy the situation to the best of their ability with the available resources. First, the teaching points were reviewed and six broad topics were identified. Each of these topics became a workbook:

1. The Basis of International Trade
2. Forces Affecting Foreign Exchange Rates
3. Client Needs
4. The Concepts and Mechanisms of Foreign Exchange
5. Rate Quotations and Calculations
6. Risk and Control in Foreign Exchange Operations

Then, teaching points were assigned to each workbook. The teaching points in each workbook were linked by common content, and specific learning objectives were written based on the teaching points. Needless to say, this was a somewhat backwards approach to identifying learning objectives, and of course, this made the training program "education-oriented", not "job-oriented". Again, this is an important distinction that had not been dealt with in the original analysis.

In the design phase, it was determined that the program would be self-instructional, criterion-referenced, and using the adjunctive style of instruction. Print and audio-

visual materials would be developed, but existing materials such as text excerpts and journal articles would also be used. The modular approach would be used for the presentation of the information.

For the next six months, the Training Specialist wrote criterion tests, text, scripts; conducted subject matter expert reviews, field tests, and supervised the production of the program.

In January, 1977 the print materials were ready for distribution, and all user departments were alerted. Sample copies of the program were distributed. The author began the summative evaluation procedures with the support of the Manager of Training and Education.

From January 1977 to July 1977, the author collected data from the trainees. In August, 1977 the author terminated her employment with The Royal Bank of Canada and moved to California. At that point, another Training Specialist continued to collect the feedback and forwarded it to the author over the next three to four months. Needless to say, this move influenced the summative evaluation by limiting the amount of data collected.

1.2 Context of Problem

The author wanted to develop a program which would meet the needs of six international banking groups despite the various constraints. The author was aware, upon assignment

to the project, that various inhibitors existed which would detract from a sound, systematic design, but she was determined to develop a training program from which international bankers would learn the fundamentals of foreign exchange. The author was also cognizant of the fact that training international bankers was a new venture for the bank and she wanted to be able to justify the expenditure of the money for this project by being able to show that knowledge acquisition occurred, and that it would cost less than the original, on-the-job training it was to replace.

1.3 Statement of Problem

Based on the context of the problem, the author formulated the following problem statement:

Will the trainees increase their knowledge of foreign exchange by studying this self-instructional, criterion-referenced, adjunctive program, and will it be effective in terms of its objectives and its cost?

1.4 Review of Literature

In an effort to design an instructional program from which the banking groups would learn the basics of foreign exchange, the author decided to review the literature to learn as much as possible about adult learning, criterion-referenced instruction, and how to evaluate it. It soon became evident that there had not been a great deal of research done in these areas. Nevertheless, there were several authors of research papers who did have a significant effect on the design of this training program.

Allen's¹ generalizations on media design and intellectual ability relationships influenced the design of the instruction for this program. As a result of his study, Allen proposed the following instructional design principles:

1. Introductory presentations, which provide an organizing structure for the content that follows, may enhance the learning of that material and make it more resistant to forgetting for learners of all levels.
2. The structuring or organizational outlining of the content of an instructional communication may increase the learning of the content for learners of all abilities.
3. The elicitation of an active response or engagement of the learner in active participation during the presentation of instructional material may increase the learning of that material by all ability groups.
4. Posing questions related to the material to be learned may increase the learning of that material by all ability groups.
5. The furnishing of correcting or confirming feedback relative to an individual's response during presentation of instructional material may increase the learning of that material for all mental ability groups.
6. Redundancy of information by means of repetition may increase the learning of that information by individuals at all mental ability levels.

Gagne's² learning principles were similar to Allen's generalizations. Gagne studied the "external events" of instruction, specifically, external events that:

1. Engage the attention of the learner
2. Provide information and feedback
3. Present the essential stimulus for learning
4. Stimulate recall and provide practice

¹W.H. Allen, "Intellectual Abilities and Instructional Media Design," A-V Communications Review 23 (no. 2, 1975), pp. 149-156.

²R.M. Gagne, Conditions of Learning (New York: Holt, Rinehart and Winston, 1970).

He indicated that the most critical learning took place when the learner was offered guidance for learning (verbal direction, questions, prompts, etc.), and then, was provided feedback. A few years later, Gagne classified these external events into four phases of instruction:

1. Introductory
2. Guidance for initial learning
3. Application
4. Performance and feedback

Both Rothkopf and Frase also considered external events within the concept of mathemagenic activities (behaviors that give rise to learning). Again, these external events were similar to Allen's and Gagne's. Frase studied the use of questions in orienting directions. He determined, through several studies, that "factual pre-questions function to cue responses to specific stimuli. If placed after the related text, the same questions can reinforce learning behaviors which are not limited to specific stimuli". This finding applied particularly to the decision to use pretests and criterion posttests in the foreign exchange training program. Frase also advocated the use of structural information to orient direction because "research showed that informing the reader in advance about the structure of a text increased recall during the latter stages of acquisition."³

³E.Z. Rothkopf, "The Concept of Mathemagenic Activities", Review of Educational Research 40 (no. 3, 1970), pp. 325-335; L.T. Frase, "Boundary Conditions for Mathemagenic Behaviors", Review of Educational Research 40 (no. 3, 1970), pp. 337-347.

Rothkopf and Frase were particularly concerned with the use of existing resources instead of developing expensive instructional material such as programmed learning which takes a great deal of design time and is a much more costly process. This influenced the decision to use available materials, such as journal articles and films in the training program - thus the adjunctive style of instruction.

Gropper emphasized that formulation of instructional strategies involves deciding how much and what kind of practice should occur, when it should occur, and in what sequence. His study of "passive and active carriers" influenced the selection of print, slide, and audiotape media, what role it would play, and how it would accommodate the active practice and feedback necessary for knowledge and skill acquisition.⁴ This study tried to determine, through formative evaluation mechanisms, how and if the program worked in relationship to the provisions of stimuli, opportunity for responses, reinforcement and testing through the use of passive carriers in a self-instructional, criterion-referenced, adjunctive format.

The author also attempted to learn about the use of criterion-referenced measures, which seemed more appropriate for this training program because of the six different groups of bankers who would be studying the program and who

⁴G.L. Gropper, "A Behavioral Perspective on Media Selection", A-V Communications Review 24 (no. 2, 1976), pp. 157-186; R.M. Gagne, Educational Technology and the Learning Process (Florida State University, 1973).

had different entry levels and learning needs. Again, there were few studies on this topic.

Glaser was one of the first educators who expressed his concern over the use of norm-referenced measurement techniques for criterion-referenced instruction. As Mehrens and Lehmann point out, norm-referenced measures are used for interpreting the score of an individual by comparing it to those of other individuals in the same group. This is different from criterion-referenced measures which interpret a person's performance by comparing it to a specified behavioral proficiency criterion. Since the mid-sixties, several researchers, Cox, Popham and Harris, tried to develop valid and reliable measurement techniques for criterion-referenced instruction, but they have not been wholly successful.⁵

Gagne and Briggs described two evaluation techniques, formative and summative, which could be used to evaluate criterion-referenced instruction and norm-referenced instruction. They defined formative evaluation as the interpretation of evidence to determine an instructional program's worth during

⁵R. Glaser, "Instructional Technology and the Measurement of Learning Outcomes: Some Questions", American Psychologist 18 (1963), pp. 519-521; W.A. Mehrens & I.J. Lehmann, Measurement and Evaluation in Education and Psychology (New York: Holt, Rinehart and Winston, 1973); R.C. Cox, "Evaluative Aspects of Criterion-Referenced Measures", ed. W.J. Popham, Criterion-Referenced Measurement: An Introduction (Englewood Cliffs, N.J.: Educational Technology Publications, 1971); W.J. Popham, "Indices of Adequacy for Criterion-Referenced Test Items", ed. W.J. Popham, Criterion-Referenced Measurement: An Introduction (Englewood Cliffs, N.J.: Educational Technology Publications, 1971); N.D.C. Harris, "An Index of Effectiveness for Criterion-Referenced Items Used in Pre-tests and Posttests", Programmed Learning and Educational Technology 11 (no. 3, 1974), pp. 125-132.

its development. The results are used to revise and improve the instructional program. They suggested that a formative evaluation be informal and be conducted with observations and quantitative measures for each lesson, topic, course, etc. A few students could be used to determine feasibility, while instructional effectiveness would require many students. The main objective of a course evaluation would be to gather convincing evidence from students, teachers, and observers.⁶

Gagne and Briggs stated that a summative evaluation is not on-going, but it is conducted when the instructional material is more or less complete. The purpose of a summative evaluation is to determine how well the instruction has worked as a "whole". A summative evaluation is more formal. It may use questionnaires, and systematic assessment of the mastery of each objective in the entire course. Again, the evidence sought must be convincing. Gagne and Briggs identified five types of outcomes:

1. Measures of mastery of intellectual skills
2. Measures of problem-solving ability
3. Tests of information
4. Observation or measures of adequacy of motor skills
5. Self-report questionnaires to assess attitude

The results of a summative evaluation could be used in a similar manner to those of a formative evaluation - to revise and improve the course. In "An Introduction to Foreign Exchange", outcomes 2, 3 and 5 were desired and evaluation instruments

⁶R.M. Gagne and L.J. Briggs, Principles of Instructional Design (New York: Holt, Rinehart and Winston, 1974).

were designed to collect the data on these outcomes. Gagne and Briggs indicated that summative evaluation should be designed to answer three questions:

1. To what extent have the stated objectives of instruction been met?
2. In what ways, and to what degree, is it better than the instruction it will supplant?
3. What additional, possibly unanticipated, effects has it had, and to what extent are these better or worse than the supplanted instruction?⁷

In this study, Question 1 was the main concern, both in the formative and summative evaluations. Questions 2 and 3 were not evaluated because there was not the time, personnel or monetary resources to do so, other than to determine the cost-savings between the two methodologies.

With reference to the work of Thomas, Tennyson, Lawson, Gagne and Briggs, summative evaluation questionnaires were designed to elicit the opinions of the trainees and their supervisors. Thomas suggested:

The main purposes of a course evaluation are to check on the effectiveness of the course in achieving its objectives; to suggest ways in which the course objectives might be altered; and where possible to indicate ways in which the content, organization and presentation of the course might be revised to make it more effective in achieving these objectives.⁸

⁷Ibid.

⁸I.D. Thomas, "Considerations in a Course Evaluation in Higher Education", Educational Technology 16 (no. 4, 1976), pp. 32-37; R.D. Tennyson, "The Role of Evaluation in Instructional Development", Educational Technology 16 (no. 9, 1976), pp. 17-24; T.E. Lawson, Formative Instructional Product Evaluation: Instruments and Strategies (Englewood Cliffs, N.J.: Educational Technology Publications, 1974); R.M. Gagne and L.J. Briggs, Principles of Instructional Design (New York: Holt, Rinehart, and Winston, 1974).

Mehren's⁹ and Lehmann's⁹ guidelines on conducting item analyses were referred to when planning the item analysis of each pretest and criterion posttest in "An Introduction to Foreign Exchange". The purpose of doing an item analysis was to determine if learning occurred, and if there were any defects in the tests. The criterion established to determine if learning occurred was that 80% of the trainees would score 100% on the criterion posttests. This performance standard was set arbitrarily. The popular performance standard at the time in CRI circles was 90/90. The author could not find, in her literature review, any sound reason for the 90/90 standard, so she set the performance standard of 80/100 for two reasons of her own:

1. "An Introduction to Foreign Exchange" was a very basic orientation to the subject. She felt that anyone from the six banking groups should have a complete knowledge of this information. Therefore, the criterion was set at 100%.
2. The percentage 80% was selected as a result of reading about Pareto's Law.¹⁰ The implication of this law is that approximately 20% of your sample will be below average performers, 60% are average, and 20% are above average. Therefore, the author decided that the average and above average performers (80%) should be expected to achieve 100% on the criterion posttests.

⁹W.A. Mehrens and I.J. Lehmann, Measurement and Evaluation in Education and Psychology (New York: Holt, Rinehart and Winston, 1973).

¹⁰L.R. Bittel, The Nine Master Keys of Management, (New York: McGraw-Hill, 1972).

1.5 The Objectives

Three objectives were established for the study:

1. The first objective was to ascertain if 80% of the trainees scored 100% on the posttests thereby indicating mastery of the general learning objectives.
2. The second objective was to determine if the program could be improved, by evaluating:
 - a) Content
 - b) Instructional methodology
 - c) Trainee expectations
 - d) Trainee attitudes
 - e) Course environment
3. The third objective was to compare the cost of this self-instructional training program to the conventional, on-the-job training it replaced, and to determine if it was effective in terms of its objectives.

1.6 Rationale for Objectives

The rationale for Objective 1 was that the author wanted some evidence for management that the trainees did, in fact, learn from this training program. Much money was being spent on its development, and in order to justify this type of expenditure, hard data was needed as proof of results. Also, because of the many potential problems of a program which really satisfies no one specific need, pre and post course scores would indicate that, despite the constraints, trainees acquired knowledge and skills they did not have prior to going through the program.

A long-term goal of the author was to encourage the Training and Education Department of The Royal Bank to place more emphasis on the evaluation of training programs for

effectiveness of instruction, as well as for accuracy and adequacy of the context. This was the rationale for Objective 2. The plan was that the results from this aspect of the evaluation process would be used to revise the program and to prepare a second, improved edition.

As for Objective 3, the author believed that the cost of design and development of a new instructional program must be compared to the instruction it replaces in any profit-making enterprise. Effectiveness of the instruction should be one of several determinants in the decision to proceed with a project. If this training program cost less than the on-the-job training, and if the first two objectives were achieved, this last factor would justify the development of "An Introduction to Foreign Exchange".

1.7 Significance of the Study

This study provided valuable feedback on areas in the program needing improvement. In the formative evaluation, six (6) International Banking subject matter experts reviewed the program for accuracy and adequacy of the content. Then, three (3) International Management Development trainees studied the course to determine the feasibility of developing and implementing this criterion-referenced, self-instructional program. Each trainee received the Validation Questions in Appendix A, and their responses to these questions were reviewed and evaluated in order to determine the feasibility of this instructional program.

The summative evaluation results were useful in the

banking environment for the development of learning strategies which would have positive impact on the acquisition of knowledge and/or skills. More specifically, self-instructional programs were a relatively new mode of instruction for the bank, and it was felt that much could be learned from how they were perceived, used, and evaluated by the bankers.

Lastly, the study gave the author her first on-the-job experience in designing, developing, implementing, and evaluating a self-instructional program in a banking environment. As a result, she learned much about the realities of instructional design and development in profit-making enterprises.

II. PROCEDURES

2.1 Samples of Populations Who Used the Program

This program was designed for six banking groups:

1. International management development trainees
2. Domestic banking officers posted to overseas assignments
3. International banking officers visiting Head Office en-route to new international posts
4. International Money Market officers
5. International Center officers
6. Foreign exchange and other officers in branches which generate large volumes of foreign exchange business

During the period, May, 1977 to November, 1977, approximately forty (40) Royal Bank officers or trainees studied "An Introduction to Foreign Exchange". Fourteen (14) trainees completed the Participant's Opinion Questionnaire. The sample of trainees came from three of the banking groups:

1. International management development trainees
2. International Money Market officers
3. International Center officers

Ten (10) trainees returned their programs to the author for the item analysis.

Although five (5) supervisors had been requested to complete the Supervisor's Opinion Questionnaire, only one (1) returned it. Therefore, it was decided not to include any supervisory feedback in this study due to lack of data.

2.2 Some Problems Encountered in Obtaining Data

The Design and Development section of the Training and Education Department of The Royal Bank of Canada was committed to using the instructional systems approach and hired graduates from Concordia University's Master of Arts in Educational Technology program as training specialists. The manager of Design and Development fully supported the project for this thesis-equivalent, and lent assistance by requesting other managers in International Departments to require their trainees to evaluate the program. In summary, The Royal Bank could not have been more supportive of this project.

There were two major problems in collecting data for evaluation of the project. First, the trainees were situated all over the globe, and the further they were from Head Office, the more difficult it was to obtain the evaluation results. Second, the author of the program resigned from The Royal Bank of Canada in order to move to California. This occurred before all the evaluation results were collected. Another Royal Bank training specialist collected and forwarded the data to California as it was received. Lack of contact with The Royal Bank and with Concordia's Educational Technology Department was a deterrent in completing this study, and the scope had to be reduced, mainly in the numbers of trainees participating in the evaluation effort.

2.3 Variables

The variables in this study were as follows:

1. Independent

Adjunctive, criterion-referenced, self-instructional program

2. Dependent

- a) trainees' results on pretests and criterion posttests
- b) trainees' feedback on Participant's Opinion Questionnaire

3. Control

- a) Banking or university experience
- b) Guide, Index/Progress Chart, Glossary, content of workbooks, related learning activities, feedback (Answerbook)

The operational definitions of the variables which were considered were as follows:

1. Learning

The recall of facts and/or information and the application of skills to the extent that 80% of the trainees will achieve 100% on the criterion posttests.

2. Achievement of objectives

The accomplishment of the general learning objectives of "An Introduction to Foreign Exchange" in terms of criterion test results, and trainees' opinions concerning the achievement of the objectives.

3. Self-instructional approach

Self-paced study by individuals (as opposed to group paced)

4. Criterion-referenced instruction

The content of a course tied to specific standards which a student must meet in order to ascertain that he/she has learned or performed, as planned (mastery learning),

5. Adjunctive program style

Prepared teaching materials, fully validated, which lead the student through separate or adjunctive texts. The materials provide stimuli, opportunity for responses, reinforcement and testing (Holden, 1973). In this program, it includes three "passive carriers": printed text, 35mm slides, and audiotapes with built-in practice exercises, criterion tests and answers.

6. Appropriate

That which is especially suitable for the specified bank groups (topics, assessments, etc.)

7. Effectiveness

Those specified elements which produce the accomplishment of the objectives

8. Environmental factors

All external conditions which affect the trainee while he/she studies

9. Level of difficulty

The stage at which content becomes hard to understand; hard to achieve

10. Pre-requisite for entry

The knowledge or skills a trainee brings into the course, specifically in relation to the topics to be studied

11. Cost-effectiveness

The saving of study time and money over the approach previously used, with trainees acquiring a specified level of knowledge

2.4 Software Production

2.4.1 General Learning Objectives

The following general learning objectives were determined at the outset of the design and development phase and were based on the analytical data collected and the learning priorities identified by the Training Analyst and Training

Specialist. The trainee:

1. Will be conversant in the concepts, terminology and forces affecting and influencing foreign exchange markets so that he/she will be able to translate client needs into profit-making solutions by promoting Royal Bank foreign exchange services
2. Will be able to explain the mechanisms of the foreign exchange market with full appreciation of the complexity of the situations arising in that market
3. Will be accurate in foreign exchange transactions, by being able to calculate exchange rates using the correct procedures, and being aware of the most common, costly mistakes to avoid, and the consequences of making those mistakes
4. Will recognize foreign exchange and credit risks from both the bank's and client's point of view, and will be able to formulate, suggest and carryout risk-eliminating solutions
5. Will know the rules, guidelines and procedures to maintain control over a foreign exchange department, and thus will be able to lessen risk by imposing certain limitations

2.4.2 Choice of Software/Hardware for Program

Media selection processes developed by Friesen, Gagne, Holden, Kemp, and Romiszowski were studied to determine which would be the most useful.¹ It was decided to use Holden's media selection matrices because they made the system of media selection more precise, but did not necessarily lead to a single solution, as did some of the other media selection processes. Instead, Holden's matrices narrow the choices by

¹P.A. Friesen, Designing Instruction (Ottawa: Friesen, Kaye and Assoc. 1971); R.M. Gagne and L.J. Briggs, Principles of Instructional Design (New York: Holt, Rinehart and Winston, 1974); E.F.J. Holden, Instructional Media Selection (Montreal: Bell Canada, 1973); J.E. Kemp, Planning and Producing Audio-visual Materials 3rd Ed. (Toronto: Fitzhenry and Whiteside, 1975); A.J. Romiszowski, The Selection and Use of Instructional Media (London: Kogan Page, 1974).

applying appropriate criteria; then permit a final judgment based on several factors. The goal was to eliminate illogical or subjective choices. Holden's matrices, and an explanation of them are included in Appendix A.

Holden borrowed, from the field of computer programming, the concepts of hardware and software selection - two distinct levels. The hardware was the actual equipment or machinery which processed the data or conveyed the message. For example, a textbook or a television monitor would be hardware. The software included the instructions on using the instructional materials and the information with which a learner interacts. Holden's premise was that you can not select the appropriate hardware until the software, which is dependent on the type of learning sought and the strategy selected to teach it, was chosen or designed.

Holden considers many variables in his Software Media Selection Matrix:

1. Objectives level
2. Learning types
3. Educational level
4. Objective orientation
5. Type of use (grouping)
6. Reliability of output
7. Subject matter stability

In his Hardware Media Selection Matrix, he considers:

1. Stimulus capability
2. Response

3. Type of use (grouping)
4. Cost
5. Adaptability for various software
6. Compatibility with other hardware

As a result of using Holden's matrices, it was decided that a print, self-instructional program would be most appropriate. The print program would rely on other resources for information (adjunctive instruction). Some of these resources were film, 35 mm slide-tape, and audiotape which required special equipment. Some of the learning activities using the audio-visual media were optional.

2.4.3 Design of the Program

The first step the author took, when designing the program, was to separate the teaching points and objectives into modules (units of study). The modules were assigned to six major subjects. Each major subject had a workbook devoted to it. Each workbook had a content page and a general introduction which provided an organizing structure to direct the attention of the learner and arouse his/her interest. Each module in the workbooks contained a criterion pretest, objectives, and a list of resource material needed to study that module. All of these elements corresponded to Gagne's² Introductory Phase and to item 1 of Allen's generalizations (page 6).

The purpose of the pretest was to increase learning

and motivation. The information presentation followed the criterion pretest. It contained the directions for studying the excerpts from textbooks, journal articles and written information which made up each module. In the fourth and fifth workbooks, an audiotape, and a 35mm slide/ audiotape presentation were utilized for some of the information presentations. The purpose of having the audio-visual presentations at this point in the program was to break the monotony of studying a large body of printed material, thereby, motivating the student by providing a change of pace. The information presented in the audiotape and in the slide/audiotape was appropriate to those media. For example: the trainees listened to foreign exchange transactions, and he/she saw International Money Markets and the foreign exchange traders, instead of just reading about them. These instructional elements corresponded to Gagne's³ Guidance for Initial Learning Phase and to item 2 of Allen's generalizations (page 6).

In order to determine if the trainee could apply what was being learned, practice exercises were presented in some of the modules in which the application of skills was stressed. The objective of these practice exercises was that they would promote retention and transfer of the information studied. This corresponded to Gagne's⁴ Application Phase and to items 3 and 4 of Allen's generalizations (page 6).

At the end of each module, there was a criterion post-

³Ibid

⁴Ibid

test which was identical to the pretest. Trainees determined what they had learned, and there was immediate feedback via the Criterion Test Answerbook. They were also encouraged to discuss their answers with their supervisors and their colleagues. These elements matched Gagne's⁵ Performance and Feedback phase and item 5 of Allen's generalizations (page 6).

In order to provide an organizing structure to the whole program (Gagne's⁶ Introductory Phase and item 1 of Allen's generalizations (page 6), a Guide was written with instructions to the trainee on the use of the program. An Index/Progress Chart was also produced which listed the titles of all the modules and workbooks. This chart enabled the trainee to keep track of what he/she planned to study, and what he/she completed.

A Glossary of Foreign Exchange Terminology was written to provide standard definitions of banking terms which the trainee needed to learn. The Glossary was another attempt to reinforce learning through repetition of information which conformed with item 6 of Allen's⁷ generalizations (page 6).

2.4.4. The Pilot Program

The first draft of the program was validated by six

⁵Ibid

⁶Ibid

⁷W.H. Allen, "Intellectual Abilities and Instructional Media Design", A-V Communication Review 23 (no. 2, 1975): 139-170.

subject matter experts in foreign exchange. The program was revised, and the second draft was tested by three international account officer trainees, each from a different banking group for whom this program was designed. These trainees had a maximum of three days to individually study the program in a quiet work area. The author provided each trainee with a list of questions to alert them to factors to watch for during their study of the program (see Appendix B). When the trainees finished their study, each was interviewed by the author to learn their opinions. Following this validation process, the program was revised for the final time.

2.4.5 Production Notes

The end product was produced in two parts: a trainee's self-instructional kit and a media kit. The self-instructional kit was housed in a binder specifically designed for the program. The binder contained the Guide, Index/Progress Chart, Glossary, six Workbooks and the Criterion Tests Answerbook. The media kit was a storage box which was designed to hold a carousel tray of 35mm slides and two cassette tapes. The formative evaluation instrument was a Participant's Opinion Questionnaire (see Appendix C).

The sound studio at Concordia University (Sir George Williams Campus) was rented to produce the audiotapes. A semi-professional narrator and three amateurs were used for the voices. Copying the audiotapes was also contracted out to Concordia University. The 35mm slides were produced by the Graphic Production Centre of The Royal Bank of Canada.

Copies of the slides were made by Professional Color Service. The Graphic Production Centre at The Royal Bank also did the layout, typesetting, and paste-up of all print materials. The program was printed by Dickson Litho Ltd. The binders were designed and supplied by Chas. A. Chapman Company. All of the above was produced under the direction of the author.

2.5 Evaluation of the Program

When writing the evaluation procedures for this program, three different factors were considered:

1. Design
2. Data and instrumentation
3. Data analysis

Design

To determine if the objectives of this study were met, different evaluation procedures were used to collect the data.

To ascertain if trainees learned from the program and if 80% scored 100% on the criterion posttests, criterion pretests and posttests were incorporated into each module. Trainee gains in knowledge were determined via item analyses of tests.

A Participant's Opinion Questionnaire (survey questionnaire) asked the trainees to rate the program in terms of content, instructional methodology, trainee expectations, trainee attitudes and course environment. Their opinions would influence future revisions to the program.

To determine if this program was cost-effective, fac-

tors such as developmental costs, amount of time needed by trainees to study the program, and amount of supervisory tutoring time were selected and analyzed using a model which compared conventional instruction to the new instruction.

With regard to internal validity, an attempt was made to control history by distributing each trainee the same instructions and materials to work with. Beyond that, it was not possible to control for history. (History is defined as the learning from items other than the information presentations which theoretically threatens the internal validity of the program.) Although pretests may affect internal validity, the use of pretests was part of the treatment; therefore, it was not important if the trainees did better on the criterion posttests as a result of the pretests, rather than the information presentations. Since the evaluation instruments and data collection did not change during the study, internal validity was not affected by instrumentation. Selection of subjects for the study was restricted to the six banking groups. Individuals who were involved with the development of this program were not permitted to take part in the formative or summative evaluations. Thus, selection bias was controlled.

Data and Instrumentation

Scores from the criterion pretests and posttests provided the data necessary to determine if there was an increase in learning. The scores on the criterion posttests also indicated if 80% of the sample scored 100%. These tests measured

recall of facts, generalization of principles, and application of techniques. The number of incorrect answers, correct answers and no attempts on the pretests and posttests provided data for the item analysis.

Content validity of the program was verified by the subject matter experts in foreign exchange, as well as by the item analysis.

Test reliability was ascertained by validating the tests on trainees prior to the summative evaluation.

Data for the questionnaires were pre-coded for the rating scales and checklists. The responses were converted into a score. For ranking type items, average ranks for each item were determined across all respondents. Categorical responses provided a scale where the number of agreeing responses by respondents provided a total score. Open-ended items were coded after the data was collected.

Data Analysis

To determine if Objective 1 was achieved - that 80% of the trainees scored 100% on the criterion posttests, raw scores for each of the posttests were added for the ten trainees who made up the test group. The total possible raw scores for each posttest were also determined. Then the median score was calculated.

As a further comparison, the percentage of students scoring 100% on the criterion pretests was calculated to determine if there was a gain in knowledge between the pre-

tests and posttests. Again, the total possible raw scores were added and the total raw score results for the ten trainees. From these figures, the median score was calculated, as was the percentage of trainees who increased their scores to 100% from pretests to posttests.

Although the test group was too small to conduct a valid item analysis of each test item, the median was calculated for each of the pretests and posttests to provide the typical scores in each test, and to provide a measure of the gain in knowledge for each test.

It was decided arbitrarily that if the trainees scored more than 75% on a pretest, it should be studied carefully to determine if it was too easy, and if it should be redesigned. Similarly, in the posttest, if the average score was less than 75%, it would be carefully studied to determine if there were faulty items, was worded ambiguously, or was not relevant to the content of the module. If any one of these conditions existed, the test would be re-designed.

The Participant's Opinion Questionnaire yielded different types of data. Unstructured response items were post-coded and then the response similarities and differences tabulated. Checklist response items and categorical response items yielded nominal data. With both of these types of response items, the number of trainees who indicated agreement on each item were counted. The rating scale provided interval data. Each point on the scales were assigned a score. Scores across all respondents were added, and the mean score was cal-

culated for all of the respondents for that particular item to obtain the average score. Then, the standard deviation was calculated to determine the spread of the score about the mean. Ranking responses provided ordinal data. The rank of each response across respondents was summed to obtain an overall rank order.

To evaluate cost-effectiveness, expenditures were recorded for "An Introduction to Foreign Exchange", and costs and time were estimated for on-the-job training based on current salary scales and suggested on-the-job training guidelines in the bank. To calculate cost-effectiveness, the corporate training cost formulas devised by Head and Buchanan were used as the basis for the computations and comparisons in this study.⁸ These formulas were more sophisticated than what the author had originally intended to use.

⁸G.E. Head and C.C. Buchanan, "Cost/Benefit Analysis of Training: A Foundation For Change", NSPI Journal 11 (1981): 25-27.

III. RESULTS

3.1 Objective 1

This objective was to determine if the trainees learned from the program, and therefore achieved the general learning objectives. If 80% of the trainees scored 100% on the thirty-two (32) criterion posttests, it would indicate that the trainees learned from the program.

First, it was decided to determine the percentage of students scoring 100% on the pretests. The results indicated that 10% of the trainees scored 100% on the pretests. When the average score was more than 75% on a pretest, it was studied to determine if it was too easy or faulty, and if it should be re-written. In four (4) of the thirty-two (32) pretests, the average score was more than 75% (See Table 3.1.1). After reviewing each of these four pretests, the author determined that in three out of four of the pretests, (A-3, A-6, B-2), cues to the answers had been given. The trainees had only to select one of two possibly correct answers. This made the tests much too easy. In the fourth pretest (B-1), the author concluded that it was testing principles which were too basic for most of the target populations.

It was calculated that 82.9% of the trainees scored 100% on the posttests; 2.9% above the criterion established

(See Table 3.1.2). Therefore, the trainees learned from the program. In fact, 72.9% of the trainees increased their knowledge to score 100% on the posttests.

In each posttest, when the average score was less than 75%, the test was carefully studied to determine if there were faulty items in it; it was worded ambiguously; or it was not relevant to the content of the module. In only one (1) of the thirty-two criterion posttests, was the average score less than 75% (See Table 3.1.2). This posttest, E-6, was testing recall of bank-specific policies. On pretest E-6, the trainees also had very low scores. The author concluded that this information was new to the trainees. However, other reasons as to why they did not score above 75% on the posttest are that they may have been tired, or they rushed to finish the program. As this posttest was near the end, and as it required writing of the answer (short answer type), the trainees simply did not bother to do it. There did not seem to be anything inherently wrong with the test content, format, or type of knowledge testing.

TABLE 3.1.1

DATA ON ACQUISITION OF KNOWLEDGE AND SKILLS IN PRETESTS

N=10

Module	Total Possible Trainee Scores	Total Trainee Scores	Total Possible Module Score	Median Module Score	# of 100% Module Scores	Average Module Scores of More than 75%
A-1	(150)	91	15	10	3	
A-2	(70)	8	7	0	0	
A-3	(150)	85	15	11.5	0	76.6
A-4	(30)	4	3	0	1	
A-5	(50)	12	5	0	0	
A-6	(120)	77	12	9.5	1	79.1
A-7	(40)	16	4	.05	3	
A-8	(70)	39	7	5	1	
B-1	(50)	35	5	4.5	5	90
B-2	(90)	76	9	8.5	5	94.4
B-3	(70)	23	7	3	1	
B-4	(100)	50	10	5	1	
C-1	(50)	30	5	3	1	
C-2	(240)	106	24	12	0	
D-1	(170)	70	17	8.5	0	
D-2	(280)	67	28	2.5	0	
D-3	(200)	91	20	10.5	1	
D-4	(80)	41	8	4.5	0	
D-5	(180)	97	18	12	1	
D-6	(70)	25	7	1	2	
D-7	(70)	26	7	2.5	0	
E-1	(210)	102	21	11.5	0	
E-2	(70)	25	7	1.5	1	
E-3	(50)	13	5	.5	0	
E-4	(70)	32	7	4	1	
E-5	(70)	41	7	5	3	
E-6	(110)	14	11	.5	0	
F-1	(180)	88	18	11.5	1	
F-2	(150)	44	15	5	0	
F-3	(160)	57	16	5.5	0	
F-4	(120)	25	12	0	0	
F-5	(100)	15	10	0	0	

TABLE 3.1.2

DATA ON ACQUISITION OF KNOWLEDGE AND SKILLS IN POSTTESTS

N=10

Module	Total Possible Trainee Scores	Total Trainee Scores	Total Possible Module Score	Median Module Score	# of 100% Module Scores	Average Module Scores of Less than 75%
A-1	(150)	134	15	15	8	
A-2	(70)	69	7	7	9	
A-3	(150)	148	15	15	8	
A-4	(30)	30	3	3	10	
A-5	(50)	50	5	5	10	
A-6	(120)	114	12	12	8	
A-7	(40)	39	4	4	9	
A-8	(70)	67	7	7	8	
B-1	(50)	50	5	5	10	
B-2	(100)	95	10	10	9	
B-3	(70)	65	7	7	6	
B-4	(100)	94	10	10	8	
C-1	(50)	45	5	5	7	
C-2	(240)	215	24	21.5	4	
D-1	(170)	151	17	17	6	
D-2	(280)	217	28	24	3	
D-3	(200)	177	20	19	2	
D-4	(80)	77	8	8	7	
D-5	(180)	175	18	18	6	
D-6	(70)	69	7	7	9	
D-7	(70)	67	7	7	8	
E-1	(210)	198	21	21	6	
E-2	(70)	63	7	7	7	
E-3	(50)	41	5	4.5	5	
E-4	(70)	66	7	7	7	
E-5	(70)	64	7	7	7	
E-6	(110)	92	11	7	7	63.6
F-1	(180)	176	18	18	8	
F-2	(150)	135	15	14	3	
F-3	(160)	147	16	15.5	5	
F-4	(120)	101	12	13	6	
F-5	(100)	64	10	9.5	5	

3.2. Objective 2

The second objective was to evaluate the program to determine if improvements and revisions should be made. It was evaluated by the trainees in terms of:

1. Trainee expectations
2. Trainee attitudes
3. Content
4. Instructional methodology
5. Course environment

The Participant's Opinion Questionnaire (See Appendix C) was completed by fourteen (14) trainees to provide data for Objective 2.

Part One of the Questionnaire was completed before the trainees began studying the program. The trainees were asked:

1. To identify to which group of bankers they were presently associated (Table 3.2.1)
2. To identify their reasons for studying the course (Table 3.2.2)
3. To describe what they wanted to learn from the course (Table 3.2.3)
4. If they had any previous experience with the subject matter (Table 3.2.4)

TABLE 3.2.1

TRAINEE BANK POPULATIONS

N=14

Bank Group	Number of Trainees
1. International Management Development Officers	4
2. International Money Market Officers on permanent assignment	2
3. International Center Officers	3
4. Foreign Exchange Officers Overseas	1
5. Foreign Exchange Trader Trainees	3
6. Domestic Branch Administration Officers	1

TABLE 3.2.2

REASONS FOR STUDYING THE COURSE*

N=14

# of Trainees	Reason
9	1. They were asked to study it.
7	2. They had a need to know prior to a future assignment.
6	3. They had a need to know for their present position.
6	4. They studied it for personal education and development.
1	5. The course was recommended by a colleague.

*more than one response could be given.

TABLE 3.2.3

TRAINEES' OBJECTIVES IN STUDYING THE PROGRAM

N=14

# of Trainees	Objective
10	1. To learn the basics of foreign exchange and its function at The Royal Bank of Canada.
1	2. To calculate foreign exchange rates.
1	3. To learn about the Euromarket, International Monetary Fund, and SDR's.
1	4. To learn the practical, applied side of foreign exchange.
1	5. To comment on the program for this study.

TABLE 3.2.4

PREVIOUS EXPERIENCE WITH SUBJECT OF FOREIGN EXCHANGE

N=14

	Bank Experience	Training/ Education	No Experience
# OF TRAINEES	6	2	6

Part Two of the Participant's Opinion Questionnaire was completed following the trainees' study of the course. Again, fourteen (14) trainees responded.

Trainee Expectations

In Part One of the Questionnaire, the trainees were asked to describe what they wanted to learn from the course. In Part Two, they were asked if the course had fulfilled their expectations to their satisfaction (Table 3.2.5).

TABLE 3.2.5

TRAINEE EXPECTATIONS

N=14

Strongly Agree - 7 Undecided - 4 Strongly Disagree - 1

Item No.	Statement	Rating	Mean	Standard Deviation
5.	The course fulfilled my expectations, as outlined in Part One of this questionnaire, to my satisfaction.	Undecided	4.50	1.24

The trainees were asked, in Part Two, to rank the workbooks in the order they were most informative for them, taking into account their expectations of the course. The results are shown in Table 3.2.6.

TABLE 3.2.6

USEFULNESS OF WORKBOOKS

N=14

Most Useful - 1		Least Useful - 6
Raw Score*	Rank	Workbook
36	1	Workbook D, "The Concepts and Mechanisms of Foreign Exchange"
41	2	Workbook A, "The Basis of International Trade"
41	2	Workbook F, "Risk and Control In Foreign Exchange Operations"
47	3	Workbook B, "Forces Affecting Foreign Exchange Rates"
51	4	Workbook E, "Rate Quotations and Calculations"
57	5	Workbook C, "Client Needs"

* Raw Score = All fourteen scores of each Workbook added together to obtain a total score which indicated its rank.

Trainee Attitudes

In Part Two, the trainees were asked:

1. If they had the required background to benefit from the material (Table 3.2.7)
2. If they were bored by the program (Table 3.2.7)
3. To compare their state of knowledge in the General Learning Areas, after studying the program, to their being able to apply this knowledge on-the-job (Table 3.2.8)

TABLE 3.2.7

GENERAL TRAINEE ATTITUDES

N=14

Strongly Agree - 7 Undecided - 4 Strongly Disagree - 1

Item No.	Statement	Rating	Mean	Standard Deviation
15.	I had the required background to benefit from the course material.	Tend to Agree	5.36	1.09
24.	I was bored by the program.	Tend to Disagree	3.07	1.91

TABLE 3.2.8

POST-COURSE ASSESSMENT OF KNOWLEDGE OF GENERAL LEARNING AREAS
(PERCENTAGE OF TRAINEES).

General Learning Areas	N=14			
	I am only aware of it	I under- stand this well enough to apply it	I need more infor- mation	I need more prac- tice
1. The basic function of the foreign exchange market.	0	85.8%	7.1%	7.1%
2. The terminology of foreign exchange.	0	78.6%	0	21.4%
3. The forces which affect and influence foreign exchange markets.	14.3%	50.0%	28.6%	7.1%
4. Translation of client needs into profit-making solutions using Royal Bank foreign exchange services.	20.0%	20.0%	20.0%	40.0%
5. The mechanisms of the foreign exchange market.	13.3%	53.4%	13.3%	20.0%
6. Mistakes: how they are made and their consequences.	13.3%	60.1%	13.3%	13.3%
7. Foreign exchange risk and precautions to take to lessen it.	12.5%	62.5%	18.8%	6.3%
8. The rules, guidelines, procedures used in The Royal Bank to control a foreign exchange department.	21.4%	42.9%	35.7%	0
9. The role of international trade and its relationship to foreign exchange.	7.1%	64.3%	21.5%	7.1%

Content

Trainees were requested to give their opinions on various aspects of the course:

1. Learning level of the content of the course (Table 3.2.9)
2. Effectiveness of various materials (Table 3.2.10),
Note: The Optional Films and Optional Reading ratings were eliminated because no more than two trainees used them, so there was insufficient data to rate them.
3. Amount of material (Table 3.2.11)
4. Content of instructional components (Table 3.2.12)

TABLE 3.2.9

LEARNING LEVEL OF PROGRAM

N=14

Basic - 1

Intermediate - 4

Advanced - 7

Item No.	Statement	Mean	Standard Deviation
1.	Circle the number on the scale which represents your opinion as to the level of the content of this course.	2.36	1.08

TABLE 3.2.10

EFFECTIVENESS OF INSTRUCTIONAL MATERIALS

N=14

		Poor - 1	Acceptable - 4	Excellent - 7
Item No.	Instructional Material	Rating	Mean	Standard Deviation
1.	Information Presentations	Less than Acceptable	3.85	1.46
2.	Journal and Textbook Articles	Acceptable	4.92	.27
3.	Practice Exercises	Acceptable	4.29	1.20
4.	Criterion Tests	Acceptable	4.29	1.20
5.	Glossary	More than Acceptable	5.29	1.33
6.	Answerbook	Acceptable	4.80	1.87
7.	35mm Slides and Cassette Tape "International Money Markets"	Less than Acceptable	3.36	1.96
8.	Cassette Tape "Foreign Exchange Transactions"	Less than Acceptable	3.27	1.79

TABLE 3.2.11

AMOUNT OF INFORMATION

		Too Little - 1	Just Right - 4	Too Much - 7
Item No.	Question	Mean		
1.	How would you rate the amount of material?	3.15		

TABLE 3.2.12

OPINIONS ON CONTENT OF INSTRUCTIONAL COMPONENTS

N=14

Strongly Agree - 7 Undecided - 4 Strongly Disagree - 1

Item No.	Statement		Mean	Standard Deviation
9.	The Answers to the criterion tests satisfied me.	Undecided	4.58	1.66
12.	The criterion test questions were too easy.	Tend to Disagree	3.57	1.76
25.	I did not receive enough feedback on my responses to test items.	Undecided	4.07	1.71
23.	Instructions were easy to follow.	Tend to Agree	5.29	1.61
18.	The sequence of modules was logical.	Undecided	4.79	1.89

Instructional Methodology

Most Royal Bank trainees were not accustomed to using self-instructional training programs. Therefore, it was desirable to learn what their attitudes were toward this methodology following their study of the program. In particular, seven areas were being studied:

1. Use of self-instruction
2. Use of criterion tests as pretests
3. Use of the same criterion test as a pretest and as a posttest for each module

4. Number of criterion tests
5. Length of the modules
6. Use of audio-visual media
7. Interaction, discussion and feedback with peers on the subject

The results are shown in Table 3.2.13 on the following page.

TABLE 3.2.13

TRAINEE ATTITUDES ON INSTRUCTIONAL METHODOLOGY †

N=14

Strongly Agree - 7 Undecided - 4 Strongly Disagree - 1

Item No.	Statement	Rating	Mean	Standard Deviation
16.	I found the self-instructional approach difficult to use.	Disagree	2.07	1.22
7.	Being able to assess the knowledge before I studied each module was useful and informative.	Undecided	4.50	2.06
11.	It was distracting to have the same test before and after each module.	Undecided	4.43	2.06
13.	There were not enough criterion tests.	Tend to Disagree	3.43	1.88
14.	A final test for each workbook would more accurately test my comprehension than the criterion tests for each module.	Tend to Disagree	3.79	1.56
19.	100% is the ideal achievement level for the criterion tests	Undecided	4.50	1.88
8.	The modules were too short.	Undecided	4.07	1.79
10.	The slide/tape presentation "International Money Markets" was a welcome break from reading.	Undecided	4.27	1.92
6.	The cassette tape "Foreign Exchange Transactions" helped me to understand.	Undecided	4.75	1.30

Item No.	Statement	Rating	Mean	Standard Deviation
21.	There was enough variety in the teaching media (print, film, slides, audio-tapes, etc.) to maintain my interest.	Undecided	4.31	1.93
20.	I did not find it useful to discuss the topics with my colleagues, peers, etc.	Strongly Disagree	1.93	1.75

Course Environment

In terms of external influences that affected their study of the program, the trainees were asked about:

1. Their study environment
2. The amount of time they had to study

The results are presented in Table 3.2.14.

TABLE 3.2.14

TRAINEE OPINIONS ON COURSE ENVIRONMENT

N=14

Strongly Agree - 7 Undecided - 4 Strongly Disagree - 1

Item No.	Statement	Rating	Mean	Standard Deviation
17.	My study environment interfered with my learning.	Disagree	2.43	1.54
22.	I had sufficient time to complete all the modules I planned to study.	Tend to Agree	5.71	1.40

3.3 Objective 3

The third objective of this study was to compare the cost of "An Introduction To Foreign Exchange" to the conventional on-the-job training, and to determine if it was effective in terms of its objectives.

The conventional instruction occurred on-the-job in the seven (7) regional International Banking centers, in the International Money Market, and in The Royal Bank Agencies overseas. The trainees learned by observing job tasks and then by assuming responsibility for doing the job. The total training period ranged from six (6) months to eighteen (18) months. The foreign exchange portion was approximately three (3) weeks. Usually, there were no hotel or travel costs involved, as the trainees took up residence in the cities where they were being trained.

The total corporate training cost for three months of on-the-job training in foreign exchange was calculated to be \$95,375. for fifty (50) trainees. The calculations for the cost of this training are given in Tables 3.3.1, 3.3.2, and 3.3.3, which follow. This on-the-job training cost would remain approximately the same forever, with some increase for inflation and salary increases.

TABLE 3.3.1

ON-THE-JOB FOREIGN EXCHANGE TRAINING: STUDENT COSTS

NS (Number of students) = 50
 L (Course length in days) = 15
 SS (Student salary per day) = \$65.
 SPD (Student cost per diem) = \$0.
 STC (Student travel cost) = \$0.
 LO (Value of productivity lost/student) = \$32.50
 S' (Total student cost)

$$(NS \times L \times SS) + (SPD \times L) + (NS \times STC) + (NS \times LO) = S'$$

$$(\$48,750.) + (\$0) + (\$0) + (\$1625.) = \$50,375. (S')$$

TABLE 3.3.2

ON-THE-JOB FOREIGN EXCHANGE TRAINING: ADMINISTRATIVE COSTS

LM (Line management costs) = 7.5 hrs./student @ \$120./day
 LC (Line clerical costs) = \$0.
 SM (Staff management cost within Training Department) = \$0.
 A' (Total administrative cost)

$$(LM + LC + SM) = A'$$

$$(\$45,000.) + (\$0) + (\$0) = \$45,000. (A')$$

TABLE 3.3.3

ON-THE-JOB FOREIGN EXCHANGE TRAINING: TOTAL CORPORATE TRAINING COST

S' (Total student cost) = \$50,375.
 I' (Total instructor cost) = \$0.
 F' (Total facilities cost) = \$0.
 A' (Total administrative cost) = \$45,000.
 ID' (Total instructional development cost) = \$0.
 CTC (Total corporate training cost)

$$S' + I' + F' + A' + ID' = CTC$$

$$\$50,375. + \$0 + \$0 + \$45,000. + \$0 = \$95,375. (CTC)$$

The total corporate training cost of "An Introduction to Foreign Exchange" was \$50,499. for fifty (50) trainees in the first year. However, in the second year, the total corporate training cost would drop because there would be no instructional development costs or materials costs, only revision costs. Assuming that there would be no revisions in the second year, the cost would drop to \$19,575. for fifty (50) trainees.

So, in the first year there would be a savings of \$44,876., and in every year thereafter, there would be a savings of \$75,800. by using "An Introduction to Foreign Exchange" instead of continuing with the on-the-job training. Therefore, there is no doubt that the program is cost-effective.

TABLE 3.3.4

SELF-INSTRUCTION STUDENT COSTS

NS (Number of students) = 50
 L (Course length in days) = 5
 SS (Student salary per day) = \$65.
 SPD (Student cost per diem) = \$0.
 STC (Student travel cost) = \$0.
 LO (Value of productivity lost/student) = \$32.50
 S' (Total student cost)

$$(NS \times L \times SS) + (SPD \times L) + (NS \times STC) + (NS \times LO) = S'$$

$$(\$16,250.) + (\$0) + (\$0) + (\$1,625.) = \$17,875. (S')$$

TABLE 3.3.5

SELF-INSTRUCTION ADMINISTRATIVE COSTS

LM (Line management costs) = 2 hrs/student @ \$120./day
 LC (Line clerical costs) = \$0.
 SM (Staff management cost within Training Department) =
 1 hr/student @ \$4./day
 A' (Total administrative cost)

$$(LM + LC + SM) = A'$$

$$(\$1,500. + \$0. + \$200. + \$0.) = \$1,700. (A')$$

TABLE 3.3.6

SELF-INSTRUCTION INSTRUCTIONAL DEVELOPMENT COST

PL (Project leader - salary per day) = \$95./day for 4 days
 ID (Instructional designer - salary per day) = \$75./day for
 150 days
 SME (Subject matter expert - salary per day) = \$120./1 day for
 6 SME's
 P (Production cost (artists, photographers, direct costs)
 M (Materials (binders, media kits, cassettes, etc.)
 T (Time in days on project)
 E (Evaluation costs)
 ID' (Total instructional development cost)

$$(PL \times T) + (ID \times T) + (SME \times T) + P + M + E = ID'$$

$$(\$380.) + (\$11,250.) + (\$720.) + \$6,600. + \$10,920. +$$

$$\$1054 = \$30,924. (ID')$$

TABLE 3.3.7

SELF-INSTRUCTION TOTAL CORPORATE TRAINING COST

S' (Total student cost)
I' (Total instructor cost)
F' (Total facilities cost)
A' (Total administrative cost)
ID' (Total instructional development cost)
CTC (Total corporate training cost)

$$S' + I' + F' + A' + ID' = CTC$$

$$\$17,875. + \$0 + \$0 + \$1,700. + \$30,924. = \$50,499.$$

IV. CONCLUSIONS AND DISCUSSION

4.1 General Conclusions

The results of this study indicate that the three objectives were achieved:

1. The trainees mastered the general learning objectives, and 82.9% of them scored 100% on the posttests
2. The program was evaluated and modules needing revision and improvement were identified
3. This self instructional, criterion-referenced, adjunctive program was more cost-effective than the on-the-job training it replaced

4.2 Discussion

More specific conclusions about each of the three objectives were reached. They are based on the data collected, and as a result of the author having designed, developed, and tested more than fifty bank training programs since 1975.

OBJECTIVE 1: Trainees mastered the general learning objectives, and 82.9% of them scored 100% on the criterion posttests.

Overall, "An Introduction to Foreign Exchange" is a satisfactory orientation to the subject. It provides structure and consistent information on the topic which did not exist with the on-the-job training. This type of program also reduces a supervisor's personal biases towards the content to be taught, and it is not dependent on his or her levels of expertise and knowledge. However, the fact that 82.9% of the trainees scored 100% on the criterion post-

tests does not mean that the learning modules were adequate in terms of content and instructional methodology.

OBJECTIVE 2: The program was evaluated for accuracy and improvements in terms of:

1. Content
2. Instructional methodology
3. Trainee expectations
4. Trainee attitudes
5. Course environment

Content

On the whole the trainees agreed that content in the modules was very basic and that there was not enough information. The author believes that there were several reasons for these opinions (in order of importance):

1. There were too many different groups of banking officers whose specific training needs and entry level knowledge and skills were not identified in the needs and task analyses. This occurred because the Training Analyst had no formal training in instructional systems design. Therefore, the content was too superficial for some trainees and just right for others.
2. There was no clear cut instructional purpose. It was not determined if the need was for skills training or for general education.
3. The task analysis did not identify performance standards, so it was not possible to obtain measureable performance outcomes on-the-job. Because there were no measureable, observable performance standards, behavioral objectives could not be determined.
4. Insufficient teaching points were identified by the Training Analyst in the task analysis and lack of foreign exchange knowledge by the author hindered the inclusion of more in-depth concepts and skills.

Instructional Methodology

Gagne's four phases of instruction and Allen's tested instructional design principles did aid the author in isolating design principles to apply in this program. However, whether or not these design principles helped the trainees acquire knowledge or skills was not studied.

The trainees did not object to the design format used, but they were not positive about it either. They were dissatisfied with the information presentations, slide-tape, and audiotape. However, this study did not determine why they were dissatisfied. Was it because of methodology, content, or some other reason? After studying the data, the author thinks that they were dissatisfied with the information presentations because of the lack of depth to the content, and the small chunks in which it was presented. As for the slide-tape and audiotape, it is possible that many of the trainees did not even view or listen to them because of unavailability of the hardware. Many of the responses were undecided.

A self instructional program isolates the learner, unless personal interactions are built in. This program had no interactions built into it - either between trainees and peers or supervisors. Yet, trainees stated that being able to discuss the content with colleagues was very important. Perhaps these discussions are essential to help trainees understand how to apply concepts in the "real world". Therefore, a self-instructional program without interactions with

peers and supervisors is an inadequate instructional methodology, especially in industry.

In a similar vein, data on the practice exercises in the information presentations indicates that the trainees thought they were acceptable. Again, it was not determined why, but perhaps it was because they were able to apply the principles and concepts in examples simulating on-the-job situations.

It was also interesting that the trainees agreed that the Glossary was acceptable. The Glossary was printed as a small booklet which trainees could unobtrusively refer to on-the-job. Perhaps the application aspect was important here, but once again, this was not studied.

The summative evaluation procedures for this study were too complicated. Too many factors were being evaluated with too small a sample population; therefore, it was difficult to obtain valid and reliable results. It would have been easier and more useful if fewer factors had been included.

Trainee Expectations

The trainees were undecided as to whether the course fulfilled their personal objectives. Again, there was no specific target population to whom the program was directed. Therefore, the mix of topics may have met some of the trainees' needs, but certainly not all their needs, nor was the program as in-depth as some of them required.

In terms of ranking the books from most informative to

least informative, the trainees' responses matched their post-course assessment of their general knowledge of the topics. They indicated that the course provided adequate information on the basic concepts of foreign exchange, but it did not adequately deal with client needs and Royal Bank foreign exchange services. Perhaps, once again, they wanted information that would help them apply the concepts to the job situations.

Trainee Attitudes

On the positive side, although the trainees found the course lacking in depth, they did not find it boring. Many of the trainees were MBA's (International Banking trainees), or bankers with some foreign exchange experience, and they believed they had the necessary background to benefit from the material. It seems that they were all able to benefit from studying the program, as indicated by the pretest and posttest scores.

Course Environment

The trainees stated that they had adequate time to study the program (study time provided on-the-job), so they did not have any problems with their study environment. The fact that trainees would be given time to study the program on-the-job reinforced the fact that management felt it was important. This reinforcement and commitment from management is especially important for the successful and continued

use of a training program.

One problem with the course environment was that most international departments did not have audio-visual hardware to use the film, slides or cassette tapes. In Head Office, this was not as much a problem, as they could obtain it from the Training Department. However, in the regions across Canada and overseas, they did not use the audio-visual materials because of the difficulty in obtaining the equipment.

OBJECTIVE 3: This program cost less than the on-the-job training it replaced, and it was effective in terms of its objectives.

"An Introduction to Foreign Exchange" cost \$55,565. to train 50 trainees in the first year, as compared to \$95,375. to train 50 trainees in a three month on-the-job training session in the Foreign Exchange Department. The cost-savings is a significant \$44,876. in the first year by using the new program.

In the second year, the cost-savings continues to grow, as there are no development costs for "An Introduction to Foreign Exchange". As long as there are no revisions, the cost-savings is \$75,800. per year by using the new program.

More trainees can be trained, especially in the regions and branches where they received no training previously, because the program is a mailable, self-study program. Travel, hotel and food costs can be reduced because the trainees do not have to be sent to central, metropolitan training centers.

Although "An Introduction to Foreign Exchange" is undoubtedly effective, the author wonders if it is important. Was what the trainees learned in the self-instructional program the same as what they learned on-the-job? Did they learn more on-the-job, or less, or was it inconsistent? No pre and post studies to determine the answers to these questions were undertaken, so the results will never be known. However, for future program development, those issues should be given serious consideration.

An unanticipated benefit of the program, which added to the cost-effectiveness, was that the 35mm slide-tape program "International Money Markets" was used in Montreal International Center as a business development tool. It was being used to educate their corporate clients on the role and organization of The Royal Bank's International Money Markets.

There were several other factors for cost-justification which could have been studied, but which were not.

Line managers are not required to spend as much time conducting on-the-job training, therefore they can devote more time to other job responsibilities. The resulting increase in bank earnings, due to this fact was not calculated, but it is probably significant.

The trainees' study time was cut from sixteen days to five days. This allows each trainee to perform his/her job an additional eleven days a year, instead of being a non-productive and non-profitable resource to the bank while being trained.

The trainees receive consistent information, no matter where their location, or who their manager. This will reduce inaccurate information, personal biases, and errors. All of these factors have cost-savings related to them.

Due to the Hawthorne effect, there may also be an increase in productivity simply because the trainees are being given special attention. This has a dollar value which was not calculated.

4.3 Summary

The banking environment did not permit use of a control group for this study. Ideally, the author would have preferred to do that type of classical research. However, the study was conducted in "real world" circumstances. Perhaps this is all that can be expected in a profit-making enterprise where evaluation of training programs was practically unheard of at that time. Certainly, The Royal Bank of Canada was supportive in every way with this study, and they should be commended. Even today, in 1982, many companies would not permit use of their resources to evaluate the effectiveness of training.

By the end of 1977, more than one hundred (100) trainees had studied "An Introduction to Foreign Exchange". The program was revised in late 1978, and a second edition was printed. Improvements and corrections were made, based on some of the data from this study. However, the results of the item analysis were not shared with the bank as the author did not finish the interpretation of the data until 1981.

The design and development of "An Introduction to Foreign Exchange" was a struggle. The author was unprepared to design and develop a print, self-instructional program. The Educational Technology Department at Concordia University did not offer a course in designing and developing print, instructional materials such as job aids and programmed learning. This was a first-time experience which was also made more difficult because of the complex content with which the author was unfamiliar, and because of lack of expertise of the Training Analyst. Halfway through the development of "An Introduction to Foreign Exchange", the author requested and received permission to attend The University of Michigan's workshop in Programmed Instruction. This workshop helped, but much downtime could have been avoided, and a better product produced, if the author had already had the knowledge and skills to design and write print, instructional materials.

From the author's point of view, the project was an excellent learning experience. The knowledge gained from the study has contributed much to the author's instructional design expertise and familiarity with banking subject matter. Since 1977, the author has designed, developed, evaluated and implemented more than fifty training programs for bankers. Many of these programs are still being used five years after they were delivered to the client. As a result, the author has formed some definite ideas about training bankers (calling officers, account officers, and managers). These conclusions can be broken into several categories.

Conclusions on Instructional Methodologies

College-educated bankers and professional bankers trained internally do not learn well from self-instructional, programmed learning training programs. They prefer a more eclectic approach - adjunctive readings, seminars led by "experts", workshops, and on-the-job training combined with self-instructional training materials.

Training programs should be job-related. While they may appreciate "educational" programs, such as "An Introduction to Foreign Exchange", which teach "nice to know" information, the majority want to learn how to perform their jobs, or how to do them better. Consistently, they respond favorably to job aids, which teach them operational or decision strategies, and to Glossaries which have concise definitions of terms they encounter daily on the job.

Interaction with peers and managers is considered an excellent learning experience by most bankers. They seem to need the "relating" that self-instructional programs do not provide... They need to know that other people have the same problems, and they need to be able to compare their developmental status with their peers. Feedback is essential to their learning process, and they often express frustration when they do not receive it. The author believes that personal interactions must be present in training programs for bankers.

Bankers are insulted by "simple" styles of instruction such as programmed instruction with short teaching frames.

Many bankers come to training programs with the attitude that they already know all there is to know about the subject. Some instructional methodologies such as programmed instruction confirm their beliefs. To win the respect of bankers in a training environment, they must learn, as soon as possible, that they do not know it all. Poorly designed, or hastily designed programmed instruction does not do this. Of course, the problem is not confined to programmed instruction.

Paper and pencil tests also are looked down upon by bankers because they believe that they do not indicate how well they will do on the job. Higher order learning must be tested, and very often this does not happen in paper and pencil tests. Hence, the bankers' opinions may be well-founded. Instructional technologists must take more time to design and develop tests which evaluate ability to discriminate, conceptualize, rationalize, and problem solve.

Conclusions on Administration of Training Programs

Bank training departments are still not very successful in communicating to line management who the target population is for a training program, and how important it is to have the right population. Often, the wrong person is trained. In the future, computer-managed tracking systems may assist in identification of appropriate personnel for training efforts. However, because of the vast numbers of personnel (e.g. 10,000 to 80,000) in major banks, this will not happen overnight.

Another reason why training programs fail in banks is that they are implemented without the support of senior and line managers. If the managers whose responsibility it is to administer training do not commit themselves to its success, it will surely fail. Therefore, line and senior managers must play an active role in the training process from the beginning of a project to the end. They must assist as subject matter experts and project managers with sign-off authority. When a training program is ready to be implemented, all managers with personnel to be trained should attend an "Executive Overview" to become familiar with the objectives of the training program, its content, instructional style, and what their role is. Trainees are very quick to detect when managers have not committed themselves to the training program, and this affects their opinion of it. In some circumstances, managers should also demonstrate on-the-job the skills espoused by the program, or there will be a credibility gap. Training may be required for these managers, as well.

Sometimes, training programs fail to be used because once they are implemented, they are forgotten. No one maintains them. Updates are not provided; revisions to improve them are not made. Eventually the program dies (sits on the shelf or in a credenza) because of lack of relevance to the daily job. When the instructional methodology of a program is selected, the maintenance aspect must also be considered. Is the content volatile or stable? Who will update it?

How often will it be updated? Answers to these questions should directly influence the instructional methodology selected.

Conclusions on Evaluation

Pilot testing (developmental testing) with a small sample of the target population is essential. Usually, this type of formative evaluation is possible in banks. Sometimes, it is the only evaluation which occurs. A summative evaluation may never be conducted. Therefore, a conscientious training consultant or instructional technologist should make every effort to pilot test the training program being developed. Occasionally, one hears of a training program being evaluated with a control group, but this is rare unless it means training thousands of people bankwide. Then, more credence is given to the value of evaluation and classical research because of the high costs that may be incurred.

The author has come to the conclusion that the lack of evaluation activities in banks results from having training departments staffed by line bankers who have no instructional technology background, or by trainers who acquired their skills on the job without benefit of advanced education. They simply do not know how to do it. While some training managers seek instructional technologists to staff their departments, there is a shortage of these professionals, at least in California.

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APPENDIX A
HARDWARE AND SOFTWARE SELECTION MATRICES

MEDIA: SOFTWARE SELECTION CONSIDERATIONS

TYPE OF SOFTWARE	CHARACTERISTICS							
	OBJECTIVES LEVEL	LEARNING TYPES	EDUCATIONAL LEVEL	OBJECTIVE ORIENTATION	TYPE OF USE (GROUPING)	RELIABILITY OF OUTPUT	SUBJECT MATTER STABILITY	
1. FULLY PROGRAMMED INSTRUCTION	MOTOR SKILLS COGNITIVE - ALL AFFECTIVE 1 AND 2	ALL (14)	ALL 1-6 1-MUST BE PICTORIAL 4-5 MUST BE COMPLEX AND LEAN	TASK	INDIVIDUAL WITH INSTR (PREF) WITHOUT INSTR (LESS DESIRABLE)	HIGH	SHOULD BE VERY STABLE ESPECIALLY TO ADJUST	
2. PROGRAMMED LESSON PLAN	M C - 1-5 A - 1-5	ALL	ALL	TASK	SMALL GROUP	MEDIUM	SHOULD BE MODERATELY STABLE INSTRUCTOR CAN ADJUST WITH SOME DIFFICULTY	
3. ADJECTIVE PROGRAM	C - 1-5 A - 1 AND 2	2-8	2-8 REQUIRES READING SKILL	TASK → GROWTH	INDIVIDUAL W/O INSTR	MEDIUM	NOT TOO IMPORTANT CAN CHANGE TEXTS	
4. LESSON PLAN - POINT FORM	M C - 1-5 A - 1-5	ALL	ALL	TASK → GROWTH FULL SCALE	LARGE GROUP SMALL GROUP	LOW	NOT TOO IMPORTANT INSTRUCTOR CAN ADJUST EASILY	
5. DEVELOPMENTAL - INSTRUCTOR LED	C - 2-5 A - 1-5	6-8	3-5 SECONDARY AND ABOVE	GROWTH	SMALL GROUP	LOW	NOT IMPORTANT	
6. STUDY GUIDE	C - 1-5 A - 1 AND 2	4 TO INCL	2-6	→ GROWTH	INDIVIDUAL - WITHOUT INSTR	LOW	NOT TOO IMPORTANT	
7. STUDENT DEVELOPMENTAL	C - 2-5 A - 1-5	6-8	4-5	GROWTH	SMALL GROUP	VERY LOW	NOT TOO IMPORTANT STUDENTS CAN ADJUST	
8. STUDENT DISCOVERED OBJECTIVES	C - 1-5 A - 1-5	6-8	4-5	GROWTH	SMALL GROUP INDIVIDUAL	TOTALLY ABSENT	NOT SIGNIFICANT	

FIG. 1

MEDIA: HARDWARE SELECTION CONSIDERATIONS

TYPE OF HARDWARE	CHARACTERISTICS						
	1 STIMULUS CAPABILITY	2 RESPONSE CAPABILITY	3 TYPE OF USE (GROUPING)	4 LOCATION CONSTRAINTS	5 COST	6 ADAPTABILITY FOR VARIOUS SOFTWARE	7 COMPATIBILITY WITH OTHER HARDWARE
PRINT - PROGRAMMED TEXT - ADJUNCTIVE PROGRAM - STANDARD TEXT	VISUAL - VERBAL - PICTORIAL VISUAL - PICTORIAL NIL	VERBAL GRAPHIC NIL	INDIVIDUAL	FREE	LOW	NO LIMIT	NOT APPLICABLE
2 AUDIO TAPE CASSETTE / REEL-REEL SINGLE TRACK MULTI TRACK	AURAL	NIL ORAL	INDIVIDUAL SMALL GROUP INDIVIDUAL	MOBILE	MEDIUM PRODUCTION-MEDIUM MEDIUM - HIGH	ADAPTABLE	GOOD
3 FILM STRIP/SLIDE / 35 MM WITHOUT SOUND WITH SOUND - SYNC - NON-SYNC	VISUAL - PICTORIAL STATIC VISUAL / AURAL	NONE DIRECTLY OR COVERT REQUIRES SUPP INSTRUCTOR	ALL LARGE GROUP SMALL GROUP INDIVIDUAL	MOBILE	MEDIUM - HIGH PRODUCTION - MED	ADAPTABLE	GOOD - SOME PROBLEMS WITH SYNC PULSES BETWEEN MAKES
4 MOTION FILM 8 MM 16 MM	VISUAL AURAL - PICTORIAL - MOTION - COLOUR	NONE DIRECTLY COVERT	LARGE GROUP SMALL GROUP INDIVIDUAL	MOBILE	HIGH PRODUCTION - VERY HIGH	ADAPTABLE	GOOD
5 VIDEO TAPE BLACK AND WHITE COLOUR	VISUAL / AURAL - PICTORIAL - MOTION - COLOUR	NONE DIRECTLY COVERT	SMALL GROUP INDIVIDUAL	SEM-PERMANENT	HIGH PRODUCTION - MED	ADAPTABLE	POOR IMPROVING FOR FUTURE (EU STD 1)
6 SIMULATORS	REALISTIC	REALISTIC - MOTOR - ORAL - REFLEX	INDIVIDUAL SOME SMALL GROUP (TEAM APPLICATIONS)	FIXED	VERY HIGH	NOT ADAPTABLE	NONE
7 MODELS	VISUAL	MOTOR	INDIVIDUAL	MOBILE - FIXED	LOW - MEDIUM	NOT ADAPTABLE	NONE

FIG 2

APPENDIX B
VALIDATION QUESTIONS FOR DEVELOPMENTAL TEST

I. COURSE GUIDE & GLOSSARY

1. Are directions clear?
2. Are directions given for all parts of course?
3. More information needed on:
 - a) Progress Chart
 - b) Path Record Sheet
 - c) Course sequence
 - d) Modules
 - e) Posttest
 - f) How to compute percentage
4. Glossary
 - a) Definitions easy to understand?
 - b) Ambiguous?
 - c) Not enough information?

II. WORKBOOKS

1. Are all resource materials needed listed?
2. Any information unclear, doesn't make sense?
3. Are exercises too easy, too hard?
4. Are exercises too numerous?
5. Are exercises boring, tedious?
6. At what points do you tire of workbooks?
7. What is most interesting about the workbooks?
8. What is least interesting about the workbooks?
9. What sections would you like more information on?
10. What sections would you like less information on?
11. Which exercises do you like the best? Why?
12. Posttest items:

- a) Scoring easy to follow?
- b) Ambiguous items?
- c) Too many/too few items?
- d) Do you like oral tests?

III. ANSWER BOOK

1. Easy to follow or difficult?
2. Are all answers presented?
3. Do answers satisfy you that they are correct, or make sense?

IV. GENERAL QUESTIONS

1. Is program too long? Too short? Right length?
 2. How long would you need to complete this program?
 3. How much time did you spend each day on the program?
 4. Do you like the idea of having audio-visual materials included?
- C

APPENDIX C

"AN INTRODUCTION TO FOREIGN EXCHANGE"
PARTICIPANT'S OPINION QUESTIONNAIRE

AN INTRODUCTION TO FOREIGN EXCHANGE
PARTICIPANT'S OPINION QUESTIONNAIRE

PURPOSE OF QUESTIONNAIRE

This questionnaire will not be used to evaluate you, so please DO NOT write your name on it. However, you are the most important source of information to help us improve the content and presentation of this course. Please assist us by completing this questionnaire; consider your responses carefully, and provide us with as much information as possible by answering all the questions.

HOW TO COMPLETE THE QUESTIONNAIRE

- 1) Read ALL of the questionnaire before you study the program.
- 2) Complete Part One BEFORE you begin your study of "An Introduction to Foreign Exchange".
- 3) After studying "An Introduction to Foreign Exchange", complete Part Two of the questionnaire.
- 4) Place the questionnaire in an envelope and return it to:

Head Office,

Training and Education

Attention: D. Zintel

YOUR COOPERATION WILL BE VERY MUCH APPRECIATED

PART ONE (To be completed before you study the course).

1. Before studying the course material, what do you want to learn from this course? Please be as specific as possible.

2. Check (✓) the group of bankers with which you are associated at this time.

- 1) International Management Development Trainee
- 2) Domestic Officer Being Posted Overseas
- 3) International Officer, Visiting Head Office En Route to New Assignment
- 4) International Money Markets Officer on Permanent Assignment
- 5) International Center Officer
- 6) Foreign Exchange Officer in Domestic Branches
- 7) Foreign Exchange Officer in International Branches
- 8) Other - Please specify below

3. What are your reasons for studying "An Introduction to Foreign Exchange"?

Check (✓) one or more answers.

- 1) Need to know for my present position
 2) Need to know prior to future assignment
 3) For my personal education and development
 4) Was asked to study it
 5) Recommended by a colleague
 6) Other (Specify) : _____

4. Have you ever had experience with the subject (either job-related or other courses)? Check (✓) the appropriate answer.

- 1) Yes
 2) No

If yes, please give details _____

COMPLETE PART TWO AFTER YOU HAVE STUDIED "AN INTRODUCTION TO FOREIGN EXCHANGE".

PART TWO (To be completed after you study the course).

DIRECTIONS: Read each statement, make a judgment and circle the code letters to the left which best represents your opinion. The code letters are:

- SA - Strongly agree
- A - Agree
- TA - Tend to agree
- U - Undecided
- TD - Tend to disagree
- D - Disagree
- SD - Strongly disagree

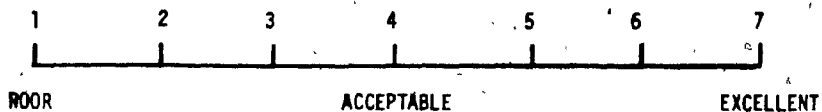
- | | | | | | | | |
|----|---|----|---|----|---|----|---|
| SA | A | TA | U | TD | D | SD | 5. The course fulfilled my expectations, as outlined in Part One of this questionnaire, to my satisfaction. |
| SA | A | TA | U | TD | D | SD | 6. The cassette tape "Foreign Exchange Transactions" helped me to understand. |
| SA | A | TA | U | TD | D | SD | 7. Being able to assess my knowledge before I studied each module was useful and informative. |
| SA | A | TA | U | TD | D | SD | 8. The modules were too short. |
| SA | A | TA | U | TD | D | SD | 9. The answers to the criterion tests satisfied me. |
| SA | A | TA | U | TD | D | SD | 10. The slide/tape presentation "International Money Markets" was a welcome break from reading. |
| SA | A | TA | U | TD | D | SD | 11. It was distracting to have the same test before and after each module. |
| SA | A | TA | U | TD | D | SD | 12. The criterion test questions were too easy. |
| SA | A | TA | U | TD | D | SD | 13. There were not enough criterion tests. |

- SA A TA U TD D SD 14. A final test for each workbook would more accurately test my comprehension than the criterion tests for each module.
- SA A TA U TD D SD 15. I had the required background to benefit from the course material.
- SA A TA U TD D SD 16. I found the self-instructional approach difficult to use.
- SA A TA U TD D SD 17. My study environment interfered with my learning.
- SA A TA U TD D SD 18. The sequence of modules was logical.
- SA A TA U TD D SD 19. 100% is the ideal achievement level for the criterion tests.
- SA A TA U TD D SD 20. I did not find it useful to discuss the topics with my colleagues, peers, etc.
- SA A TA U TD D SD 21. There was enough variety in the teaching media (print, film, slides, audiotapes, etc.) to maintain my interest.
- SA A TA U TD D SD 22. I had sufficient time to complete all the modules I planned to study.
- SA A TA U TD D SD 23. Instructions were easy to follow.
- SA A TA U TD D SD 24. I was bored by this program.
- SA A TA U TD D SD 25. I did not receive enough feedback on my responses to test items.

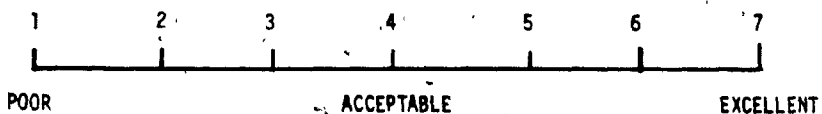
26. Rank the workbooks in the order that they were most informative for you (taking into account your reasons for studying this course). Write #1 for the workbook being the most useful, down to #6 being the least useful.

- _____ a) The Basis of International Trade
- _____ b) Forces Affecting Foreign Exchange Rates
- _____ c) Client Needs
- _____ d) The Concepts and Mechanisms of Foreign Exchange
- _____ e) Rate Quotations and Calculations
- _____ f) Risk and Control in Foreign Exchange Operations

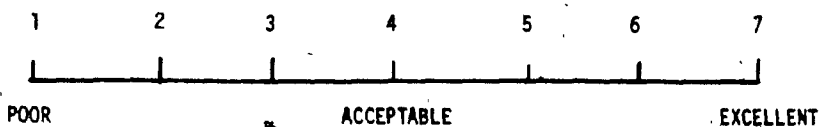
32. glossary of foreign exchange terminology



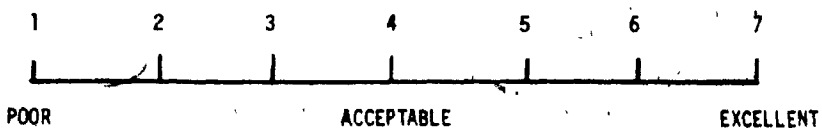
33. criterion tests answerbook



34. "International Money Markets" - 35mm slides and cassette tape



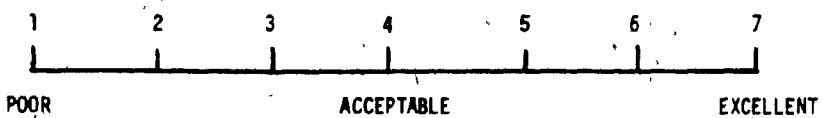
35. "Foreign Exchange Transactions" - cassette tape



36. optional films



37. optional reading



38. How would you rate the amount of material?



TOO
LITTLE

JUST
RIGHT

TOO
MUCH

Now that you have completed your study of "An Introduction to Foreign Exchange", please assess the state of your knowledge of the General Learning Areas in relation to you being able to apply them on-the-job. Check (✓) the appropriate box. More than one box may be checked.

GENERAL LEARNING AREAS	ASSESSMENT LEVELS				
	I am only aware of it	I understand this well enough to apply it	I need more information	I need more practice	This does not apply
39. The basic function of the foreign exchange market.					
40. The terminology of foreign exchange.					
41. The forces which affect and influence foreign exchange markets.					
42. Translation of client needs into profit-making solutions using Royal Bank foreign exchange services.					
43. The mechanisms of the foreign exchange market.					
44. Mistakes: how they are made and their consequences.					
45. Foreign exchange risk and precautions to take to lessen it.					
46. The rules, guidelines, procedures used in the Royal Bank to control a foreign exchange department.					
47. The role of international trade and its relationship to foreign exchange.					