

INVESTIGATION AND ASSESSMENT OF STRUCTURAL COMMUNICATION  
AS A TRAINING METHOD FOR THE CANADIAN FORCES  
INDIVIDUAL TRAINING SYSTEM

Albert Jakob Madsen

A Thesis Equivalent  
In  
The Department  
Of  
Education

Presented in Partial Fulfillment of the Requirements  
for the degree of Master of Arts at  
Concordia University  
Montréal, Québec, Canada

April, 1982

© Albert Jakob Madsen, 1982

ABSTRACT

INVESTIGATION AND ASSESSMENT OF STRUCTURAL COMMUNICATION  
AS A TRAINING METHOD FOR THE CANADIAN FORCES  
INDIVIDUAL TRAINING SYSTEM

Albert Jakob Madsen

A videotape training package was prepared in the structural communication format, an application of structural communication that has not been reported upon in the literature. It is submitted as part of this thesis-equivalent. A comprehension test and attitude questionnaire were also prepared. The training materials and testing instruments were formatively evaluated in a pilot study (N = 60). A study was conducted using military personnel. Stratified random assignment was used to assign subjects to different conditions in Experiment 1 (N = 49). A one-factor design with 4 conditions was used: (a) a videotape presentation, (b) a videotape presentation with study unit, (c) a videotape script with study unit, and (d) no presentation. The Scheffé method was used to test for treatment effects. Both structural communication treatment groups scored higher than the control group ( $p < .05$  and  $p < .10$ ). Subjects in Experiment 2 (N = 19) were assigned to groups by random assignment. A posttest-only control group design was used. The treatment group which received the videotape with study unit scored higher than the control group using the student t-test ( $P < .05$ ). Structural communication was found to be an effective model for videotape based instruction. Results of the attitude questionnaire indicated that each group in Experiment 1 that received a particular treatment demonstrated a positive attitude toward it. The treatment group in Experiment 2 indicated a neutral attitude toward the treatment.

Dedication

To my wife and sons, Joan, Kristian and Lewis, who, through their encouragement and understanding, provided me with the inspiration to complete this thesis-equivalent.

Table of Contents

	Page
CHAPTER 1: INTRODUCTION	
Context of the Problem.....	1
Purpose of the Study.....	4
Significance of the Study.....	4
CHAPTER 2: REVIEW OF RELATED RESEARCH	
Research on Television in Training.....	5
Research on the Self-Pacing of Instructional Materials.....	6
Research on the Systems Approach to Training Design.....	7
Application of Learning Theory in the Systems Approach.....	9
Other Applications of Classifications of Learning in Designing Instructional Activities.....	10
Defining a Broader Perspective for the CFITS Approach.....	11
Current Issues in the CFITS Approach and Suggested Improvements	13
A Model of Types of Learning for Capability Training.....	17
The Structural Communication Method.....	19
Applications of Structural Communication.....	19
Development of the Structural Communication Method.....	20
Purpose of the Method.....	20
The Format of Structural Communication.....	20
How to Use the Study Unit.....	22
Structural Communication and Programmed Instruction.....	23
Structural Communication and the CFITS..	24
Summary.....	25

CHAPTER 3: METHODOLOGY

Objectives of the Study..... 27

Definition of the Variables..... 27

Hypotheses..... 29

Rationale for the Hypotheses..... 30

The Subjects in the Studies..... 30

Videotape on the CFITS..... 31

The Text Version of the Videotape..... 32

The Study Unit..... 32

Instrumentation Used in the Study..... 32

Research Design..... 35

Threats to Internal Validity..... 36

Threats to External Validity..... 38

The Procedure for the Pilot Study..... 39

The Procedure for Experiment 1..... 39

The Procedure for Experiment 2..... 40

Time Constraints for the Studies..... 40

The Sequencing of the Studies..... 40

Role of the Administrators..... 40

Data Analysis..... 41

CHAPTER 4: RESULTS OF THE EXPERIMENTS

The First Hypothesis..... 42

The Hypotheses on the Different Treatments..... 42

The Attitude Questionnaire..... 45

The Questionnaire on the Videotape Presentation..... 45

The Questionnaire on the Text Presentation..... 47

The Questionnaire on the Study Unit.....	48
The Overall Attitudes of the Groups.....	49
Part III of the Questionnaire (General Comments).....	50
CHAPTER 5: DISCUSSION	
Conclusions.....	51
Summary.....	52
Recommendations for Further Research.....	52
REFERENCES.....	54
Appendix A: A Videotape Script for a Program on the Canadian Forces Individual Training System (CFITS).....	60
Appendix B: Printed Text Version of the Videotape Script.....	84
Appendix C: Instructions for the Administration of the Study.....	91
Appendix D: The Study Unit on the CFITS.....	104
Appendix E: Comprehension Test on the CFITS.....	118
Appendix F: Questionnaire on the Videotape Program and Study Unit..	125
Appendix G: Questionnaire on the Printed Text With Videotape.....	130
Appendix H: Notes for the User of the Videotape Training Package on the Canadian Forces Individual Training System .....	135

## List of Figures

		Page
FIGURES		
1	The Continuum of Learning .....	18
2	The Structure of Structural Communication .....	21
3	Research Design for Experiment 1 .....	36
4	Research Design for Experiment 2 .....	36

List of Tables

	Page
TABLES	
1 Summary Table of the Results of Item Analysis .....	33
2 Summary of Test Items Retained .....	34
3. T-test Comparison of the Control and Videotape-only Groups .....	42
4 Analysis of Variance of the Population Means in Experiment 1 .....	43
5 Tests of Significance for Paired Groups Receiving Different Training Presentations .....	44
6 A T-test Comparison of the Study Unit with Videotape Group to the Control Group .....	45
7 Attitude of Subjects Toward the Videotape Presentation...	46
8 Attitude of Subjects Toward the Text Presentation .....	47
9 Attitude of the Subjects Toward the Study Unit .....	48
10 Attitudes of the Groups Toward the Treatments in The Study .....	49



## Chapter 1

### Introduction

#### Context of the Problem<sup>1</sup>

Training in the Canadian Forces (CF) has been based on a systems approach to training since 1967. It resembles the systems approach used by other large training organizations known as Instructional Systems Development (ISD). The CF approach, called the Canadian Forces Individual Training System (CFITS), represents a total approach to training and is intended to ensure that training programs are developed in a cost effective and training efficient manner. It is an approach in which the behavioral objective occupies a central role in training design, in both the specification of training requirements and in the preparation of training activities. The CFITS has been primarily developed to function within the context of a traditional, group-paced instructional setting.

Training design within the present CFITS is based on occupational analysis and is used to determine the tasks that comprise the job requirements of a particular trade. The results are documented as a trade specification. This specification illustrates different levels of expertise, or trade qualification level, required for the performance of the tasks. Each level lists the categories of knowledge and skill requirements considered necessary for the successful performance of the tasks. The categories used to identify the skill levels are straight

---

<sup>1</sup> The opinions expressed in this paper on the CFITS are those of the author and are not necessarily an expression of Canadian Forces policy.

forward: the individual tradesman either assists, does, does and supervises, or supervises the tasks of the trade at a particular level. However, the categories to identify the levels of knowledge are not straight forward and easily distinguishable. They include: basic, detailed, comprehensive, and complete. They are used, nonetheless, by various personnel in defining training requirements (DND, Note 1). The trade specification is subsequently used by an ad hoc committee formed to develop the tasks as performance or behavioral objectives for a particular level of the trade. These objectives are then assessed for training implications, assigned to a school or an on-job training environment and compiled into a Course Training Standard (CTS) or an On-Job Training Standard (OJTS). The CTS is analyzed by a subsequent ad hoc committee for purposes of preparing a Course Training Plan (CTP). This committee identifies specific training objectives, training methods and aids, the sequence of instruction, and the time to be allotted for training. This document is subsequently used by the instructor as guidance in preparing lessons. This ad hoc committee approach to training design indicates a syllabus approach to trades training rather than a curriculum based one. It does not deliberately foster the planned utilization of a progressive and integrated series of learning experiences across the different levels of a trade.

The CFIIS approach to selecting training media suggests the use of a complex chart as a guide for identifying appropriate instructional activities and training media. It is comprised of eight categories, with each containing a list of attributes considered appropriate to the category. The categories are; training objectives, training content, trainee population, instructor qualification criteria, facilities,

equipment and materials, time and "other" considerations. For each attribute within a category there is a recommended primary training method, a supporting method of instruction, and a list of training aids for each method. There is also an alternative training and supporting method with an accompanying list of appropriate training aids (DND, Note 2). Of the various categories listed, the training content category most closely represents a quasi-classification of types of learning. However, to suggest that this represents a classification of learning as an integral part of the CFITS approach would be difficult to support. It is to be noted that the use of a classification for training design has been recommended by Morse (Note 3). He has suggested that it would be particularly useful in helping an objective developer to define appropriate training objectives (1970).

A recent study conducted by Halliday (Note 4) examined future trends in technological developments and their effects on the CFITS. He has suggested that developments in computers and related fields will have a significant impact, both in terms of cost effectiveness and on the approach used to provide training. He has predicted that current CF development work in converting seven courses from a group-paced to a self-paced mode of instruction will gain momentum and will result in widespread application in the next 10 years. A similar trend has already occurred in other training institutions and is reported to be highly successful (Mager, 1977).

An impending activity in the CF is a widespread implementation of videotape technology for purposes of enhancing group-paced training programs. It is intended that instructional videotapes will be produced

by CF personnel and used primarily to portray procedures and skills related to the successful performance of the tasks of a job. The guidelines and format for videotape production will likely reflect the intended instructional use, namely as a training aid by the instructor. Limiting the utilization of the videotape medium in this way could inhibit its potential use and application in the area of self-paced instruction. There are several potential CFITS applications of the videotape medium in providing training to students in the acquisition of concepts and problem-solving skills, in both self-paced and group-paced learning environments. What is particularly needed therefore, is a multipurpose format for the development and utilization of instructional videotapes that is adaptive to both modes of instruction.

#### Purpose of the Study

The purpose of this study was to prepare a videotape training package in the structural communication format and to assess its effectiveness as a training method for the CFITS. It has been reported as an effective training method in the printed text format. No reports were found on its effectiveness when used in conjunction with a videotape presentation. This method will be described beginning on page 19. The topic selected for development of the training materials was the processes of the CFITS.

#### Significance of the Study

Successful application of the structural communication method in this study would suggest that it be given consideration for inclusion in the CFITS as a multipurpose format for preparing videotape training packages, with applicability to both the self-paced and group-paced learning environments.

## Chapter 2

### Review of Related Research

#### Research on The Television Medium in Training

Several studies have been carried out that compare the learning effectiveness of educational television and film with conventional classroom instruction. For the majority of studies, the findings indicate no significant differences in the two approaches (Chu & Schramm, 1967; Dubin & Hedley, 1969; Greenhill, 1966; Stickell, 1963; Schramm, 1967, among others). Additional studies indicate that students perform better when they actively respond during a television program than when they view it passively (Gropper, 1967) and that a combination of live and televised interaction is more effective than when only presented live (Carner, 1962; Taylor, 1969).

A review of the literature on the use of instructional film and videotape in the CF, the United States Armed Forces and the British Royal Air Force (RAF) indicated that use of this medium is viewed primarily as a training aid in a group-paced instructional setting (Branson, Rayner, Lamarr Cox, Furman, King, & Hannum, 1975; DND, Note 2; RAF, Note 5). One suggested application of this medium for self-paced instruction was located in the training documentation of the United States Air Force (USAF). The suggested approach was to prepare a videotape utilizing the techniques of the programmed lecture (1978a). These techniques involve the presentation of instructional points in small steps, followed by active student responding and feedback throughout the program (1978b).

Studies have been carried out that report on the effectiveness of combining programmed instruction with film (Gropper, 1967; Gropper & Lumsdaine, 1961, among others). The findings reported that students who received the programmed version attained test scores that were significantly higher than students that only viewed the film or television program. Additional applications of videotape in self-paced instructional programs are being done with the use of computers. The Time-shared, Interactive Computer Controlled Information Television (TICCIT) system (TICCIT, Note 6) utilizes a minicomputer to control the presentation of videotape segments as part of a computer assisted instruction lesson. The Sony Corporation is currently developing a video responder system that is controlled by a micro-computer. This approach, similar to the one suggested earlier by the USAF, utilizes a multiple choice format for student interaction and provides feedback to the student at pre-determined points in the videotape presentation. Additional commercial research endeavors include development of a computer controlled videodisc for training applications (Halliday, Note 4). Adoption of these devices for use in the CFITS is seemingly cost prohibitive, especially in view of the high costs known to be associated with initial acquisition of videotape equipment. One finding in the literature search pointed out that the method of structural communication was suggested as appropriate for preparing media training packages, although empirical evidence was not cited (Zeitlin & Goldberg, 1970).

#### Research on the Self-Pacing of Instructional Materials

A review of 112 comparative studies between programmed instruction and classroom instruction has been reported by Hartley (1972). The majority of the results indicated that programmed instruction can be as

effective as classroom instruction. A similar result has been reported in a US Army study that compared the effectiveness of self-paced audiovisual lessons with classroom instruction. (Knerr, Downey, & Kessler; 1975).

Other reports have indicated that the self-paced approach to training has gained acceptance in industry due to cost and training benefits and increased standardization of training content (Brightman, 1975; Miner, 1976). Studies have also reported that the administration of programmed materials can be effective in both self-paced and group-paced learning settings (Burch, 1971; Holroyd, Lever, Kennedy, Dunn, & M. G. Harden, 1971). Raphael and Wagner (1974) reported on the superiority of a television presentation to text and audiotape presentations for training in assembly tasks.

#### Research on the Systems Approach to Training Design

A review of the literature on military applications of a systems approach to training indicated significant differences exist in organizational approaches to course design and in the selection of media. This is also characteristic of industrial training organizations. These differences appear to be due to the variety of ways in which the systems approach has been implemented.

A year-long study on the different approaches for the preparation of training using a system approach was performed by Montemerlo and Tennyson. They were forced to conclude "over 100 manuals are available which contain fundamental disagreement on the most basic aspect of course design. None of the manuals have been empirically validated" (1976, p. 2).

This diversity has been attributed to the inability of instructional designers to provide appropriate guidelines for the design of training programs. It has been described by Aagard and Braby (Note 7) as follows:

In the process of designing training systems, professionals have been inconsistent in integrating available knowledge and principles on how people learn. Frequently, the translation of psychological learning principles into practices useful for the classroom has not been accomplished, much to the detriment of the instructional program. Since significant training gains can be made through the application of these principles, guidelines which assist the designer in the translation of basic concepts of learning into specific descriptions of specific action are needed. To solve this problem, the development of standard guidelines for the structuring of training materials is being seriously examined (p.7).

Many such guidelines have been developed in the form of comprehensive manuals, consisting of highly proceduralized methods of course design - a result that might be considered as detrimental to training effectiveness. The rationale for producing these manuals has been described by Montemerlo (1977).

By following such a manual, the layman could copy the methods and the results of the expert at a much lower cost....[and]... since the layman could not be expected to exercise the "good judgement" of the expert, the manual would have to be explicit, precise and complete. It would



have to eliminate the need for judgment and creativity.

The responsibility would have to lie with the manual and not the user (p.6).

#### Applications of Learning Theory in the Systems Approach

Inherent in various manuals on the systems approach to training is the use of a classification of types of learning as an aid in developing learning experiences and in selecting training media (Branson et al, 1975; USAF, 1978a; among others). The most extensive application of such a classification was found in the training publications of the USAF.

The USAF first utilized a modified version of the types of learning identified in the taxonomy developed by Bloom (1956). Its specified application was for use by the instructor in the preparation of lessons involving conceptual and attitudinal learning (1967). Subsequent USAF publications illustrate the use of a classification of types of learning that resembles the hierarchy developed by Gagné (1970). Various applications of the USAF classification have been performed, including its use in the selection of media (1973), in relating learning objectives to appropriate types of learning in the preparation of learning activities, and as a guide for the selection of training media based on characteristics of the learning objectives (1975; 1978a). Certain inconsistencies in the hierarchical relationships of the types of learning exist however, such as treating the learning of complex motor skills as subordinate to concept learning (1978a).

Areas for improvements to the Instructional System Design (ISD) approach of the USAF have been identified by others. Renckly (1980) has pointed out that this approach does not contain ways of identifying

training and media requirements during the acquisition process of new weapons systems. Miller (1980) has expressed concern that it does not foster student acquisition of cognitive structures to facilitate learning, nor does it accommodate the idiosyncrasies of students. He has suggested there is a need to utilize a cognitive-behavioristic approach to promote more effective training.

#### Other Applications of Classifications of Learning in Designing Instructional Activities

Applications of various learning classifications have been tried or suggested for use in different educational and vocational settings. The application found most often in the literature search pertained to group-paced instruction and was used in conjunction with the behavioral objective for specifying training needs. Few applications were found that used such a classification in identifying and selecting media for training. No particular classification appeared to be used more than others.

The different classifications that were reviewed ranged from a completely arbitrarily devised one (Crak, 1971) to an all-inclusive model that incorporated the theories and models of Piaget, Bloom, Krathwold and Guilford (Williams, 1971). Other applications included; the step-by-step procedures of the scientific method (Lehman, 1968), a theoretical application of Gagné's hierarchy to technical instruction (Lawson, 1974), Bloom's taxonomy for creativity training in home economics (Loree, 1966), a proposed application of Gagné's hierarchy as an all-inclusive model for designing business training programs (Delamontagne, 1977), and the selective use of Bloom's taxonomy and Gagné's hierarchy for writing objectives and tests during course design

(Kemp, 1978). Davis (1971) has proposed a model intended to identify the appropriate use of media in terms of the domains of behavior, learning theory, and attributes of behavioral objectives. He has acknowledged that further work and empirical testing in this application is required.

#### Defining a Broader Perspective for the CFITS Approach

Determining training requirements as a result of an operationism-reductionism process of analysis is not always appropriate in the CFITS context. Morse (1970) has stated that it is impractical to treat cognitive and psychomotor skills separately when training tradesmen in electronic troubleshooting skills. Kerr (1975) has suggested the role of the training designer in preparing training for troubleshooting complex computers is to provide a training environment that will reproduce "students with a realization of their own capabilities, limitations, strong and weak points, within the forced experience of the learning environment" (p. 292).

The nature of the required training environment more appropriately concerns training for capabilities rather than training in specific skills, an area not well defined in the CFITS. The context of this environment has been stated by Mitchell (1975), "...potential capability refers to the probability that specified behavioural outcomes will be demonstrated if a person who possesses prerequisite capabilities interacts with a properly designed instructional programme" (Note 8).

Prerequisite capabilities are considered by this writer to comprise special intellectual skills known as cognitive strategies. The nature of these strategies and the way to prepare appropriate

learning activities has been described by Gagné and Briggs (1974) as follows:

A cognitive strategy is an internally organized skill that selects and guides the internal processes involved in defining and solving novel problems.... it is the object of the skill which differentiates cognitive strategies from other intellectual skills. The latter are oriented toward environmental objects and events, such as sentences, graphs, or mathematical equations. In contrast, cognitive strategies have as their objects the learner's own thought processes.... In the case of other types of intellectual skills, one can plan a sequence of learning events external to the learner which will ensure the learning of those skills. but cognitive strategies require a more indirect control: one has to organize external events so as to increase the probability of certain internal events; and these in turn determine the learning of the cognitive strategy. Accordingly, the design of instruction for cognitive strategies has to be done in terms of "favourable conditions", and cannot be accomplished by specifying the "sufficient conditions". Generally, the favourable conditions are those which provide opportunity for development and use of cognitive strategies. In other words, in order to "learn to think", the student needs to be given opportunities to think (p. 48 - 49).

The literature search found similar concerns expressed regarding the need to training for capabilities. Millerson (1972) suggested

that such training is required if an individual is to successfully adapt current film and television production techniques to the multitude of new techniques that become available through advances in technology. He has suggested that successful adaptation can be made, if the individual has acquired a firm knowledge foundation in current techniques. Barrows (1976) has described a need for training medical students in central skills. He has suggested this involves training in problem-solving, in providing opportunities to the clinician to integrate the specific skills he is taught into more central problem-solving skills which are required by the physician. Blake and Mouton (1976) have proposed a three-dimensional critiquing method that is intended to allow people to "learn how to learn" from their experience and thereby develop the capability to change them.

A recent area of study that offers promise in defining the context of capability training has occurred in competency training, known as competency theory. The method employs competency testing of people who are considered highly competent in their fields: it concentrates on the isolation of specific attributes that distinguish this type of person from a mediocre one. By isolating these competencies, such as being able to make appropriate critical decisions on the job, McClelland has demonstrated that it is possible to effectively use them for job placement and in preparing training programs to produce people capable of meeting the requirements of the job (Coleman, 1981).

#### Current Issues in the CFITS Approach and Suggested Improvements

Although the CFITS documentation does include a definition of learning, the literature search did not locate definitions that

explained what is meant by the terms training, teaching, ability, and capability, nor did it make mention of different types of learning. The literature search was therefore expanded to identify appropriate definitions that could be used to identify the parameters in which training is considered to be viewed in the CFITS. Particular emphasis was placed on locating a suitable explanation of the term "training".

One explanation of training and teaching that is considered as appropriate has been stated by Green (1969).

Training resembles teaching insofar as it is aimed at actions that display intelligence....In proportion as training is aimed at a greater and greater display of intelligence, it more and more closely resembles teaching, and one of the clues how closely training approaches teaching is the degree to which it involves explanations, reasons, argument and weighing evidence. It is because training sometimes approaches this point that we can in many cases substitute the word "teaching" for the word "training" without any change in meaning (p. 31).

A further illustration of what is meant by training has been described by Atkinson (1969):

The trained man knows how to achieve a certain sort of result. The well drilled man knows only how to carry out certain routines which will, no doubt, in appropriate circumstances, be effective in producing the results. The former operates intelligently, whereas the latter does not. The trained man knows what he is about, knows not only the rules of procedure but also the reasons for them,

and hence knows how to adapt the rules to non-standard conditions. The man who is merely well drilled has to make do with rules of thumb which he mechanically applies (pp. 282-283).

Within this concept of training, the requirement for preparing adequate "capability" objectives can be better identified. However, it is not entirely straightforward, as described by Montemerlo and Harris (1978):

The definition of training objectives is not a straightforward procedure ... the most important skills to be learned for any job are impossible to define precisely. They include the ability to generalize from what has been learned to whatever may arise on the job. Psychologists refer to this as "learning how to learn" or generalized transfer of learning (p. 5).

The difficulty in preparing appropriate training objectives for use in the CFITS may exist more in the approach to defining job requirements than in the way that training objectives are prepared. Reference was made earlier in the Introduction that the CFITS approach uses a series of ad hoc committees for the training design of the different levels of a trade. It is suggested here that a more appropriate approach should be considered, one that is curriculum based. One such approach for identifying training needs and preparing training programs has been described by Tyler (1949). In it he centers on three basic guiding criteria for building an effective organization of learning experience. They are as follows:

In identifying important organizing principles, it is necessary to note that the criteria, continuity, sequence and integration apply to the experiences of the learner and not to the way in which these matters may be viewed by someone already in command of the elements to be learned. Thus, continuity involves the recurring emphasis in the learner's experience upon these particular elements; sequence refers to the increasing breadth and depth of the learner's development; and integration refers to the learner's increased unity of behavior in relating to the elements involved (p. 96).

In working out a plan of organization for a curriculum, it is necessary to identify the elements which serve as organizing threads. For example, in the field of mathematics the organizing elements have been concepts and skills. That is to say, mathematics teachers have identified certain basic concepts in mathematics of such major importance that they have become elements to be developed beginning in the early years of mathematics and extending through to the later years of the curriculum (p. 86).

One approach to identifying these organizational threads for trades training would be to analyze and synthesize the concepts that are considered to be held by a fully qualified tradesman; to consider their various elements as they relate to the level of training where they are acquired and then determine how they can be integrated across the various levels. This could be accomplished within the context of



concept formation as described by Dale (1962).

Concept building is a process that operates quite naturally from the time a child begins to draw certain conclusions from experience and apply these to a new situation. The process continues thereafter as he makes new generalizations from new experiences and from experiences in which the old and new are combined...Whenever the student learns something new and is able to use this new something he is building or rebuilding (refining) a concept (p. 31).

#### A Model of Types of Learning for Capability Training

A review of the various hierarchies of types of learning developed by Gagné provided the basis for the development of a model of a learning continuum which serves to illustrate how the acquisition and enlargement of concepts occurs (1963; 1970). This model is presented in Figure 1. This representation is intended to provide a method of analyzing and synthesizing the various elements of concepts for determining appropriate organizational threads necessary in building a training curriculum. It is also possible to utilize this hierarchy to identify learning requirements in terms of the various types of learning and the elements that constitute the training requirement. Once this has been identified, it should be possible for the training designer to determine appropriate training methods, techniques, and media. It is further suggested that an instructor should be able to use this model to analyze individual student learning difficulties to the level that is appropriate to overcoming the difficulty, and then provide the student with the needed assistance.







Phases	Behavioral Description
1. Identifications 	1. signal learning (associations and discriminations)
2. Chains 	2. associations and discriminations
3. Concepts 	3. classifications, categorizations, generalizations
4. Skills 	4. techniques, procedures
5. Abilities 	5. task performance, reproductive problem-solving (methods, tactics, strategies)
6. Capabilities 	6. productive problem-solving, decision-making competencies

Figure 1: The Continuum of Learning

The various phases are intended to illustrate the interdependency of the types of learning in fostering concept formation. If, in the process of training design too much emphasis is placed on one phase only, the effectiveness of subsequent task performance may be quite limited. Thus the learning of skills, knowledge or physical, are dependent upon an individual's acquisition of the related concepts. An individual's ability or capability to perform on the job is also tied to his understanding of the concepts involved.

## The Structural Communication Method

### Applications of Structural Communication

Structural communication has been applied as a training method in a variety of settings. They include: Secondary With Forms and Colleges of Technology (Bennett & Hodgson, 1968), psychology and leadership training (Zeitlin & Goldberg, 1970), computer-guided correspondence seminars (Hodgson, 1971), and trainer advisor skills (Blake, 1971).

The literature search attempted to locate studies that compared the effectiveness of this method with other training methods. Only one such study was found. It pointed out that the structural communication method was more effective for promoting learning when students used this method with a text presentation compared to students who only studied the text (Baccanale & Mitchell, 1981).

A preliminary report describing the use of a coherence index as a device for measuring the combinatorial activities of the students when performing the learning activities has been written by Hodgson (1971). However, a subsequent report by Egan (1972) pointed out that some difficulties were encountered in using this device, although the nature of these were not elaborated. A mathematical analysis of this type of assessment device has been carried out by Bortoft (1973). He concluded that the use of coherence index, the matrix test, was at best a multiple multiple-choice test that measured the recall of information: it did not function as a means of assessing the combinatorial process in which the information was acquired. Similar concerns have been expressed regarding measuring devices used in criterion

referenced testing. Siegel, Musetti, Federman, Pfeiffer, Weisen, DeLeo, and Sheppard (1979) have pointed out that the basic procedures that are used have either not been fully developed or have yet to be tested in empirical settings.

#### Development of the Structural Communication Method

Structural communication originated in 1965, evolving from a general theory of structures as systems of mutually relevant elements known as systematics (Bennett & Hodgson, 1968) and from special researches in Gestalt psychology, groups dynamics, automation and systems theory (Blake, 1971). It was eventually made compatible with a computer for data processing purposes.

#### Purpose of the Method

The purpose, as explained by the Education Research Group, is "to evoke understanding, not to convey facts except as a by-product....to aim rather at educating pupils to think for themselves and to look for the wider relevance of what they are taught" (1964). The nature of structural communication has been further described by Blake (1971):

The aim in developing the techniques of structural communication has been to tackle the sphere of mental operations - reasoning, evaluation and judgment - in as direct a way as possible...it involves the structure of information and the use of arrays of statements as interfaces between people in groups or between an individual and a theme of study (p. 78).

#### The Format of Structural Communication

The overall structure of this method is the study unit. It consists of six sections: Intention, Presentation, Investigation,

Response Indicator, Discussion and Viewpoints. They are variable in length and differ in content relating to the theme of study. The manner in which they interact has been referred to as *coalescence* (Bennett & Hodgson, 1968). The way in which they are related for learning purposes has been illustrated by Egan (1976) and is shown in Figure 2.

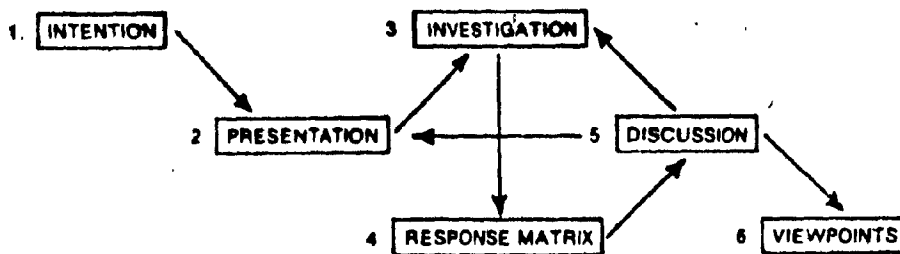


Figure 2: The Structure of Structural Communication

The Intention is the learning objective, the Presentation is the information to be studied, and the Investigation consists of questions on the Presentation. The Response Matrix is a list of key items contained in the Presentation that the student must use in answering the questions. Discussion consists of feedback to the student for each question and consists of 4 explanations on different aspects of the possible answers. The Viewpoints section is provided to enlarge upon the theme or discuss particular points that may not have been central to the presentation but are considered worthy of bringing to the student's attention.

The requirement for a theme of study has been described by Hodgson (1972a):

Any theme chosen for a study unit should form an integral whole. However, the significance of the whole is rarely immediately apparent to the student. The theme must be approached from various sub-themes within this whole so that the viewpoint of the whole can emerge clearly. Sub-themes are made the subject of the problems. So far, we have standardized on four problems per study unit, but this again is an arbitrary limitation imposed by the cost effectiveness of books and machines. What is inherent in this method is that there must be more than one problem, and that any problem should bring out the qualitative importance of the sub-theme, rather than convey it quantitatively (p. 104).

#### How to Use the Study Unit.

The learning activities in the study unit are intended to be completed by the individual student, working at his own speed. The activities provide him with an opportunity to solve specific problems based on the content of the presentation medium. The student is provided with an array of key elements that are considered to comprise the theme, and he is to select appropriate ones to answer various questions. As he completes each question, he is provided with feedback when he compares his selections against four possible solutions appropriate to the question. This feedback represents the monitoring of the student's reception of a lesson for misconceptions. These misconceptions are identified by the program writer as known to occur in the teaching of a set of principles or in the operation of the principles. The learning activities are intended to provide the

student with an integrative, synthesizing experience, from which he will gain an understanding of the theme, its elements, and the ways in which they interact with each other. Once the student completes the exercise, he is provided a viewpoints section. This section is intended to enlarge his acquired understanding by discussing additional information not previously presented, or by suggesting further applications of the theme. This essentially represents the intended manner in which the study unit can be used in a self-paced learning setting.

Application of this method to a group-paced environment is an extension of this. This occurs after the students have individually completed the study unit, within the context of a programmed group discussion. (Zeitlin & Goldberg, 1970).

#### Structural Communication and Programmed Instruction

Structural communication was initially known as structural programming. Its name was changed in 1967 to distinguish it from the two more widely known forms of programmed instruction, linear and branching programming. The reason for this distinction has been explained by the Education Research Group (1967) as follows:

Programmed instruction in all its forms is based on the principle that learning by small or large steps in a carefully designed sequence with frequent verification and encouragement can reduce the time and increase the efficiency of the learning process. This principle is valid for the transmission of knowledge and skill, but it has little bearing on the communication of understanding which involves a mental process entirely different from

those required to produce a predetermined pattern of behaviour (p. 267).

Hodgson makes a further distinction in terms of the type of subject matter that can be treated. He considers structural communication as appropriate for areas that require integration of the cognitive and affective aspects of learning - areas where he states programmed learning is not suited (1967). He clarifies this distinction further:

The learning task for the student in this approach is to become able to recognize a complex of interrelated meanings covering a complex field, and to discriminate their differing relevance to different aspects of the subject field. This must take place in an extended C-R [challenge-response] interval without immediate reinforcement. The learning task of being able to recall the material is subordinate though not unimportant (p. 348).

#### Structural Communication and the CFITS

Previous applications of this method in a variety of group-paced and self-paced settings indicates potential applications in the CFITS as well. This is made possible because the presentation medium can be treated separately from the medium that is used for organizing the learning activity. The presentation medium may be one of a variety of media, such as film, videotape or printed text. The major requirement lies in the topic of the presentation: it must consist of a theme that is comprised of the elements that also represent a set of sub-themes.



Previous applications of this method by various training organizations that are also considered appropriate to the CFITS include: leadership and management training, problem-solving experiences, among others. Of particular potential application is its use in simulation training and for training in troubleshooting skills in electronics. These appear to be highly appropriate areas of application, where the design of training situations can be set up to include training in cognitive skills and strategies.

#### Summary

Various studies were reviewed that compared the learning effectiveness of educational television and film, programmed instruction materials and self-paced instructional materials to classroom instruction. The majority of the studies reported that the results were as good as or better than classroom instruction.

A review of the documentation of various training organizations did not indicate the existence of empirically developed guidelines for use in preparing self-paced videotape training materials. One source (USAF, 1978a) suggested the use of the techniques of programmed instruction, while another suggested the use of the structural communication method (Zeitlin & Goldberg, 1970).

A review of the documentation on the training design in the CFITS indicated that there are certain aspects common in other organizations that use a systems approach that are missing in the CFITS. One such area is the absence of a classification of types of learning. The way in which training requirements are determined for a trade in the CFITS was also examined. It was concluded that little attention is focused on the integration of training across the different levels of a trade

in the CFITS. This is attributed to the absence of a curriculum approach to training. It is presently not easy to identify areas for capability training, although it is implied in examining what is described as a fully qualified tradesman. Concerns for capability training in other training organizations were also presented. One approach for identifying this type of training requirement in the CFITS was proposed, based on the concept of a curriculum approach for trade training. The literature search concluded with a review of the features of the structural communication method.

## Chapter 3

### Methodology

#### Objectives of the Study

The overall objective was to ascertain if the format and method of structural communication was an appropriate means of increasing learning effectiveness when used with a videotape or printed text instructional medium. The specific objectives were:

- 1) to design and produce a videotape on the topic of the CFITS for use as the presentation section of the study unit.
- 2) to develop the videotape script in a print format for use as an alternative medium in the presentation section of the study unit.
- 3) to develop the remaining sections of the study unit on the CFITS in print format.
- 4) to report on the effectiveness of training by means of the study unit compared with a videotape-only approach.

#### Definition of the Variables

Independent variables : in Experiment 1, consists of one factor, the type of learning activity, and three levels; videotape-only, study unit with videotape, and study unit with printed text. In Experiment 2, it consists of the study unit with videotape.

Control variable : the subjects' military rank grouped in one of three categories: Junior Non-Commissioned Officer (NCO), Senior NCO, and Junior Officer.

Dependent variable : the test scores on the comprehension test on the CFITS.

Comprehension test : consists of a 12-item multiple choice test based on the processes of the CFITS.

Attitude questionnaire: instrument developed in two formats to measure the direction of the subjects' attitudes toward the different treatments. Each format consists of three parts: Part I of the first format was designed to measure the subjects' attitudes toward the videotape presentation; Part I of the second format was designed to measure the subjects' attitudes toward the text presentation; Part II of the questionnaire was designed to measure the subjects' attitudes toward the Study Unit; and Part III was designed to be open-ended to allow the subjects to express an opinion on any aspect of the treatment they experienced.

Attitude dependent  
variable

: the degree of positiveness of the  
subjects' responses to the items on the  
questionnaire.

### Hypotheses

The following hypotheses were identified for testing in this study:

- 1) the use of the videotape presentation will result in more effective learning than when no presentation is given.
- 2) the use of the videotape presentation with the study unit will result in more effective learning than when no presentation is given.
- 3) the use of the videotape presentation as part of the study unit will result in more effective learning than the use of the videotape presentation alone.
- 4) the use of a printed text version of the videotape with the study unit will result in more effective learning than when no presentation is given.
- 5) the use of a printed text of the videotape with the study unit will result in more effective learning than the use of the videotape presentation alone.
- 6) the use of the videotape presentation with the study unit will result in more effective learning than the use of the printed text of the videotape with the study unit.
- 7) the attitudes of the subjects in Experiment 1 will be positive toward the treatments experienced.
- 8) the attitudes of the subjects in Experiment 2 will be positive toward the treatment experienced.

### Rationale for the Hypotheses

Several studies have reported that instruction via television and film can be as effective as classroom instruction (Chu & Schramm, 1967; Greenhill, 1966; among others). Studies have also reported that the use of programming techniques in conjunction with film or television is more effective than when these media are used alone (Gropper, 1967; Gropper & Lumsdaine, 1961). Other studies have reported that students prefer the type of presentation that they have experienced, whether it is by television or other means. No reports on the effectiveness of using structural communication with film or videotape were found. It was concluded that the structural communication method should be investigated to establish its effectiveness in promoting learning using the videotape medium and to determine the attitudes of the subjects that experience it.

### The Subjects in the Studies

The subjects selected to participate in the studies mainly consisted of CF military personnel who were undergoing a ten-day course to become classroom instructors. A pilot study was used to conduct formative evaluation of the instructional materials and of the measuring instruments (N = 60). The first experiment in the actual study consisted of 49 personnel attending the classroom instructor course. They participated in the summative evaluation of the independent variables identified for study, hereafter referred to as Experiment 1. These personnel represented a variety of military ranks, education levels, and vocational training and experience backgrounds. Their presence on this course indicated that their understanding of the theme of study, the processes of the CFITS, could be considered as

being approximately at the same level. Individuals were assigned to different groups within the study by stratified random assignment, using groupings by military rank.

A second experiment, hereafter referred to as Experiment 2, was carried out using subjects who were considered to possess a greater degree of understanding of the processes of the CFITS by virtue of previous training as instructors and employment in a training setting. This group represented the in-house population of the CF Training Standards Course (N=19). The subjects were divided into a control and an experimental group by means of random assignment. The treatment administered in Experiment 2 consisted of the study unit with videotape presentation.

#### Videotape on the CFITS

A videotape was produced for use in this study. The production format consisted of a discussion between two people and took the form of explanations and questions and answers. This was augmented by the use of film clips, 35mm slides, and various graphs to further illustrate the different processes, the documentation, the responsible agencies for each, and to show how they interrelate in the design, execution and evaluation of training. The final version of the videotape was 15 minutes long. A copy of the production script is provided as Appendix A. The talent for the production consisted of two CF trade personnel, a female and a male. Technical assistance for the production consisted of graduate students at Concordia University enrolled in the course, Laboratory in Television Production and Evaluation for Education II.

### The Text Version of the Videotape

The videotape script used in the production of the CFITS videotape was modified for use with the study unit as a treatment in the study. Modifications incorporated in the text version included the insertion of the print version of graphics used in 35mm slides, to ensure that the subjects who received this treatment were provided essentially the same information as the treatment groups that used the videotape. A copy of this text is provided as Appendix B.

### The Study Unit

The study unit on the CFITS was prepared in the structural communication format. It is included as Appendix D. Its readability was checked for clarity of expression, grammar, and technical accuracy by a subject matter expert on the CFITS prior to the conduct of the pilot study.

### Instrumentation Used in the Study.

A 20-item multiple choice test was prepared and administered to the subjects in the pilot study. The test was constructed to be representative of the five processes of the CFITS. After administration of the test in the pilot study, the 20 items were analyzed to determine an index of difficulty and an index of discriminability (Tuckman, 1972). The results are presented in Table 1. Based on these analyses, one item was deleted as being too easy (item 1), and three items were deleted as being too difficult (items 8, 13 and 16). Item 2 was retained as it was considered to be uniformly easy for both high and low scorers and would therefore not affect the relative positions of the scores. Six items were deleted as they did not have



Table 1  
 Summary Table of the Results of Item Analysis  
 (N=40)

Item No.	No. of high 3rd that passed	No. of low 3rd that passed	Index of Difficulty	Index of Discriminability
1	19	13	.20	.59
2	18	11	.28	.62
3	12	8	.50	.60
4	19	5	.40	.79
5	14	3	.58	.82
6	15	8	.43	.65
7	7	8	.63	.47
8	4	5	.78	.44
9	9	5	.65	.64
10	15	12	.33	.56
11	14	11	.38	.56
12	16	9	.38	.64
13	7	5	.70	.58
14	12	4	.60	.75
15	15	9	.40	.63
16	7	2	.78	.78
17	16	4	.50	.80
18	14	7	.48	.67
19	19	8	.33	.70
20	9	4	.68	.69

satisfactory discrimination power (items 1, 7, 8, 10, 11 and 13). The remaining items were then analyzed to ensure an even distribution of items across the CFITS processes. As a result, item 12, representative of the job analysis process, was deleted. Items 6 and 18 were retained over item 12 as they possessed more powerful indices of difficulty and discriminability. The remaining items were used to make up the 12-item test (see Table 2).

Table 2

Summary of Test Items Retained

Item No.	Process Represented
6, 18	Job Analysis
2, 9	Design
14, 15	Conduct
3, 5	Evaluation
4, 17	Validation
19, 20	All Processes

A correlation coefficient for test-retest reliability of the 12-item test was determined by using the control group (N=15) in the pilot study. The test was administered at the beginning of the course and repeated 10 days later. A test-retest reliability coefficient of .61 was

obtained. It was concluded that this test would be an adequate testing instrument for use in the experiments in the study.

An attitude questionnaire was constructed in two formats to measure the attitudes of the subjects toward the different treatments. Each format consisted of three parts. A Likert-type scale was used in Parts I and II; it consisted of five ratings and ranged from Strongly Agree to Strongly Disagree. Part I consisted of eight statements which were used to measure the attitudes of the subjects toward the particular presentation given. Part II consisted of five items and was used to measure the subjects' attitudes toward the study unit. Part III was made open-ended to allow the subjects to comment on different aspects of the treatment they experienced. The questionnaire was initially administered to the subjects in the pilot study. Their responses were reviewed for clarity and distribution of responses. No single item was found to be too sensitive or to indicate that the attitudes of the subjects could not be measured. It was therefore concluded the questionnaire would be a useful instrument for measuring subjects' attitudes in the two experiments of the study.

#### Research Design

A one-factorial design was selected for the pilot study and Experiment 1. It is illustrated in Figure 3. This design is a modification of the posttest-only control group design. In addition to allowing for a comparison of the different treatments in the study, it allowed for a comparison of the conjoint effect of the videotape application with the study unit to the videotape group in the study.

Design	Treatments (X)
R X <sub>1</sub> O <sub>1</sub>	X <sub>1</sub> = study unit and videotape
R X <sub>2</sub> O <sub>2</sub>	X <sub>2</sub> = study unit and text
R X <sub>3</sub> O <sub>3</sub>	X <sub>3</sub> = videotape
R O <sub>4</sub>	

Figure 3: Research Design for Experiment 1

A posttest-only control group design was selected for Experiment 2. It is diagrammed in Figure 4.

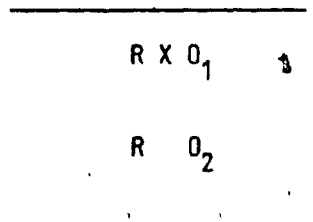


Figure 4: Research Design for Experiment 2

### Threats to Internal Validity

The test items and the study unit materials were checked by a subject matter expert prior to the pilot study to ensure clarity of expression, suitability of test items, and verification of the subject matter content on the CFITS. The pilot study was conducted to determine

the 12 items that would be used for the comprehension test. This was done by using item analysis to establish indices of difficulty and discriminability. Subsequent determination of a significant test-retest reliability coefficient eliminated a potential threat of instrumentation bias. Subjects in the control group were tested at the start of the course and retested 10 days later. All subjects participated in both sessions. Threats to internal validity from the following sources were considered to be controlled by the research design; history, maturation, experimental mortality, testing and statistical regression.

The use of stratified random assignment of subjects in the pilot study and in Experiment 1 was considered an adequate control for selection bias. The stratification consisted of three military rank groupings: Junior Non-Commissioned Officer (NCO), Senior NCO and Junior Officer. Assignment of subjects to groups on this basis was considered important because of different education, vocational and employment backgrounds of the subjects. Assignment took place on the first day of the course. As subjects presented themselves for course registration, they were assigned sequentially to the various treatments based on a one-for-one ratio per rank grouping. Random assignment of subjects was done in Experiment 2 (N=19). This was done by assigning a number to each subject and then selecting the numbers out of a hat. Subjects were alternately assigned to one of the two groups in Experiment 2. As Experiment 2 was comprised of only Senior NCO's and Junior Officers, a post analysis of group assignment was done to determine if the two categories in the study were evenly distributed. Results revealed that two Junior Officers had been

assigned to each group, the extent of representation by this rank on the course. The potential threat due to selection bias was therefore eliminated. The use of a single posttest in the two experiments controlled for potential bias of testing effects and interaction between testing and treatment.

#### Threats to External Validity

One potential threat to external validity occurred in the area of population validity. Two civilians attended the classroom instruction course at the time Experiment 1 was conducted. They were assigned to two different treatment groups as representative of the Junior NCO category, the category represented by the largest number of subjects in the experiment. Their test scores were not included in the assessment of the effectiveness of the treatments, thereby eliminating a potential threat to population validity. It is to be noted that the subjects in the studies consisted entirely of military personnel.

Sources of possible ecological validity bias were also considered. Experimenter effect was controlled by briefing the administrators of the studies as to their specific duties and by providing them with a set of guidelines for conducting the treatments. These are included as Appendix C. Possible multiple treatment bias was controlled by using the one-factorial research design and in the manner in which the treatments were established. One treatment group experienced the videotape-only presentation while another experienced both the videotape presentation and the study unit.

Potential threats of novelty effect and Hawthorne effect were not as effectively controlled. However, all subjects were advised

that they were participating in an experiment to help the CF assess a new training method for the CFITS and were encouraged to cooperate fully. The research design employed and the length of the study, less than one and one-half hours in duration, tended to minimize these threats. Furthermore, analysis of the responses in the attitude questionnaire also appeared to minimize these threats, as the group that experienced the study unit with printed text indicated it would not like to see more training materials prepared in this format.

#### The Procedure for the Pilot Study

The pilot study was administered in three separate classrooms, using three administrators. The group that received the text presentation and the study unit experienced this treatment in a separate classroom. The control group was administered the comprehension test in a separate room as well. The remaining two groups were assembled in one classroom where they were shown the videotape. Depending on the treatment, the subjects were then either given the comprehension test and attitude questionnaire, or they were given the study unit to complete followed by the comprehension test and attitude questionnaire. The subjects that received the text presentation and study unit were instructed to read the text carefully, but to read it only once. They were then to go on and do the study unit. The subjects who viewed the videotape as part of the study were only shown the videotape once. All subjects in each treatment were advised, prior to the study, that they were to leave the room once they had finished their part in the study (see Appendix C).

#### The Procedure for Experiment 1

This study was carried out in much the same manner as described

above. However, four administrators were used. In this study, the group that viewed the videotape and the group that completed the study unit with videotape were placed in two different classrooms. This was done simply to facilitate the activities of the different syndicates subsequent to the study.

#### The Procedure for Experiment 2

This study was carried out by two administrators. The subjects that served as the control group were administered the comprehension test in one classroom and then dismissed. The experimental group was assembled in another room and given the study unit with videotape treatment, followed by the comprehension test and attitude questionnaire.

#### Time Constraints for the Studies

No time limit was set for any of the groups participating in the study. The longest time to completion by any one subject was one and one-half hours, reported in Experiment 2. The subjects in the pilot study also finished within this time. All subjects in Experiment 1 were reported to be finished within one hour.

#### The Sequencing of the Studies

The pilot study was conducted using the in-house population of students attending the classroom instructors course. Experiment 1 was conducted using the next in-house population of students on this same course. Experiment 2 was conducted concurrently with Experiment 1 on the first day of course.

#### Role of the Administrators

Each of the administrators involved in the studies and treatments were briefed on how to conduct them. One administrator acted as the



co-ordinator, distributing and collecting the materials as appropriate.

### Data Analysis

The purpose of the experiments was to determine the learning effectiveness of structural communication as a method of preparing training materials. With this in mind, no pass/fail criterion was set for the comprehension test. Differences between posttest observations of the different groups in the two experiments were calculated. Testing for levels of significance was done by utilizing the Statistical Package for the Social Sciences (1977).

The student t-test was used in Experiment 1 to determine if there was a real difference in test scores between the control group and the videotape-only group. This test was also used in Experiment 2 to determine if there was a real difference between the treatment and control groups. The level of significance was set at  $p < .05$ .

A one-way analysis of variance was conducted in Experiment 1 to determine if differences existed between population means. The level of significance was set at  $p < .05$ . A comparison of the pairs of means of the different groups in the experiment was done using the Scheffé procedure. The level of significance was set at  $p < .10$  (Glass & Stanley; 1970), a level recommended as appropriate by Scheffé, as it is a more rigorous procedure than other statistical tests (Ferguson, 1971).

Analyses of the items in the Attitude Questionnaire were carried out to determine the direction of the responses of the subjects in the different treatments. The median score of the items was used as an indicator of the positiveness or negativeness of the subjects' responses per group. Intergroup comparisons were made of the different parts of the Attitude Questionnaire where appropriate.

## Chapter 4

### Results of The Experiments

#### The First Hypothesis

The t-test was applied to the test scores of the control group and the videotape-only group to establish the effectiveness of the videotape presentation prior to performing a more rigorous multiple comparison analysis of the different groups via the Scheffé method. This was done to establish the training effectiveness of the videotape presentation prior to using it as part of the study unit. A small difference ( $p < .05$ ) was found that indicated the videotape-only group scored better compared to the control group (see Table 3).

T-test Comparison of the Control and Videotape-only Groups

Group	<u>n</u>	mean	SD	t value	df
Control	13	5.0	1.73	2.29*	22
Videotape-only	11	6.45	1.29		

\* $p < .05$

#### The Hypotheses on the Different Treatments

The effectiveness of the learning activities in the different treatments was tested using a one-way analysis of variance and the Scheffé method. The use of one-way analysis of variance determined that a significant difference existed between the population means (see Table 4).

Table 4

## Analysis of Variance of the Population Means in Experiment 1

Source of Variation	Sum of Squares	Degree of Freedom	Variance Estimate
Between	41.45	3	13.82
Within	172.76	45	3.84
TOTAL	213.12	48	F=3.6*

\*p&lt;.05

The Scheffé method was used to compare pairs of group means for all groups in Experiment 1. Comparisons that achieved levels of significance were between the two study unit treatment groups and the control group. The results are summarized in Table 5. Group A represents the videotape-only treatment, Group B the study unit with videotape treatment, Group C the study unit with text treatment, and Group D was the control group.

The result of the comparison of the videotape-only group to the control group using the Scheffé method is important in that a significance was not indicated, although this had previously been achieved by use of the t-test. The point to be made is that the rigorous criterion of the Scheffé method can be used to illustrate the conjoint effect of the videotape presentation as part of the study unit. This is demonstrated by the fact that a significance was established between the study unit with videotape presentation treatment and the control (groups B and D) but none occurred between the videotape-only and control group comparison (groups A and D).

Table 5

Tests of Significance for Paired Groups  
Receiving Different Training Presentations

Group	<u>n</u>	Mean	Comparison	F	F'
A	11	6.45	A, B	0.66	
			A, C	0.48	
			A, D	4.91	
B	12	7.25	B, C	0.02	
			B, D	8.76**	8.46**
C	13	7.15	C, D	8.35*	6.69*
D	13	5.0			

\*  $p < .10$

\*\*  $p < .05$

The text presentation and study unit treatment result was compared to the control group and was also found to be significant, indicating that the study unit is an effective method of training.

The Results of Experiment 2

The t-test was used to determine the learning effectiveness of the study unit with videotape presentation compared to a control group. The result obtained was significant and in favour of the treatment given (see Table 6).

Table 6

A t-test Comparison of the Study Unit With  
Videotape Group to the Control Group

Group	n	mean	SD	t value	df
Control	10	5.3	2.75	2.36*	17
Study Unit with Videotape	9	7.89	1.9		

\*p < .05

The Attitude Questionnaire

The Procedure Used

The Likert-type scale that was developed for use in Parts I and II of the questionnaire was reduced from a 5-point scale to a 3-point scale because of the small number of subjects in each of the treatment groups. The revised scale consisted of a positive response (+), a neutral response (N), and a negative response (-). The median of the number of subjects in each group was used to determine whether the subjects' responses to an item were positive, neutral, or negative. In order for an item to be considered as positive or negative, the number of subjects responding as positive or negative had to equal or exceed the median.

The Questionnaire on the Videotape Presentation

Three groups saw the videotape presentation, Groups A and B in Experiment 1 and the treatment group in Experiment 2, shown as Group E in Table 7. The subjects' negative responses to items 2, 4, 5 and 6 were treated as positive, as these items were written in reverse order

for purposes of measuring the consistency of the subjects' responses to the questionnaire.

Table 7

Attitude of Subjects Toward the Videotape Presentation

Item	Group A			Group B			Group E		
	+	N	-	+	N	-	+	N	-
1. A good means of presentation	8	2	1	11	0	1	7	0	2
2. Information was easy to learn <sup>a</sup>	2	5	4	7	1	4	3	3	3
3. Slides maintained interest	9	0	2	9	2	1	5	3	1
4. Knowing objective not needed <sup>a</sup>	2	1	8	1	1	10	6	2	1
5. Liked female voice better <sup>a</sup>	2	1	8	3	3	6	1	0	8
6. Little concentration needed <sup>a</sup>	3	0	8	2	0	10	2	1	6
7. Showing documents was good	8	2	1	7	1	4	5	2	2
8. Questions added emphasis	9	0	2	11	0	1	8	0	1
	(N = 11)			(N = 12)			(N = 9)		

<sup>a</sup> indicates the items that were written in reverse order.

The responses by the three groups generally indicated a positive attitude toward the videotape presentation (see Table 7). Only Group B considered the information that was presented as easy to learn: Groups A and E indicated a neutral attitude on this item. This result was interpreted to mean that no particular attitude was formed by the subjects to indicate the information presented in the videotape presentation was too difficult or too easy to learn. The positive response to item 4 by Group E was in direct contrast to the responses by the other groups. It was concluded, based on the fact that this group represented

a different student population and had a greater training background in the CFITS than the two other groups, that Group E did not perceive a need to know the program objective prior to viewing the videotape.

The Questionnaire on the Text Presentation

The questionnaire on the text presentation was administered to Group C in Experiment 1. The results indicated that the overall attitude of the subjects toward the text presentation was favorable (items 1, 3, 7 and 8) but they did not consider the information easy to learn (items 2 and 6) nor to understand (item 5). The subjects indicated a neutral attitude (item 4) toward having a knowledge of the program objective prior to reading the text (see Table 8).

Table 8  
Attitude of Subjects Toward the Text Presentation

Item	Responses (N = 13)		
	+	N	-
1. A good means of presentation	8	2	3
2. Information was easy to learn <sup>a</sup>	3	3	7
3. Examples helped maintain interest	9	2	2
4. Knowing objective not needed <sup>a</sup>	4	3	6
5. Style of writing difficult <sup>a</sup>	7	0	6
6. Little concentration needed <sup>a</sup>	0	0	13
7. Examples of documents was good	10	0	3
8. Questions added emphasis	12	1	0

<sup>a</sup>Indicates the items that were written in reverse order.

### The Questionnaire on the Study Unit

Three groups completed the questionnaire on the study unit; Groups B and C in Experiment 1 and the treatment group in Experiment 2, shown as Group E in Table 9. Items 2 and 4 of the questionnaire were written in reverse order. The median of the number of subjects in the group was used to determine the type of attitude of the subjects toward an item, as was done previously with the videotape and text presentation parts of the questionnaire.

Group B responded in a positive manner toward all items. Group C responded with a favorable attitude for all items except item 3, where a neutral attitude was indicated. Group E indicated a neutral attitude toward all items except for item 3, indicating a positive attitude toward the application of this approach to other subject areas (see Table 9).

Table 9

#### Attitude of the Subjects Toward the Study Unit

Item	Group B			Group C			Group E		
	+	N	-	+	N	-	+	N	-
1. Combination used was good	10	1	1	8	3	2	3	6	0
2. Explanations were not helpful <sup>a</sup>	2	1	9	1	5	7	1	5	3
3. Try approach in other areas	10	1	1	5	4	4	5	4	0
4. Study unit not needed <sup>a</sup>	1	3	8	0	3	10	0	6	3
5. Required heavy concentration	8	1	3	9	1	3	3	5	1
	(N = 12)			(N = 13)			(N = 9)		

<sup>a</sup>Indicates the items that were written in reverse order.



### The Overall Attitudes of the Groups

The various responses by the subjects in each group were further analyzed to determine a percentage representation of the types of attitudes toward the treatments experienced. Totals were calculated for all the items considered to be positive responses in each treatment. The negative responses that were made to the items presented in reverse order were treated as representing positive responses, and the positive responses that were made were treated as representing negative responses. The responses were then totalled and a percentage of total positive, negative, and neutral responses made by the subjects was calculated for the different treatments. Based on the results of these analyses, it was possible to conclude that the attitudes of the subjects toward the different treatments were positive in all but one instance (see Table 10). Group E, the treatment group in Experiment 2, indicated a neutral attitude toward the use of the study unit.

Table 10

Attitudes of the Groups Toward the Treatments in the Study

Group	Treatment	% of positive Responses	% of negative Responses	% of neutral Responses
A	videotape	70.5	17	12.5
B	videotape	70.8	20.8	8.4
	study unit	75	13.3	11.7
C	printed text	68.3	21.1	10.6
	study unit	60	15.4	24.6
E	videotape	59.7	25	15.3
	study unit	37.8	4.4	57.8

### Part III of the Questionnaire (General Comments)

This part of the questionnaire was left open-ended to allow the subjects to comment on different aspects of the treatments that may not have been covered in the questionnaire items. The majority of subjects left this part blank. Some comments were made that repeated the intent of the items used in the questionnaire, such as "the videotape was a very good means of learning the material." Individual responses were also made that indicated opinions on some aspects not covered in the questionnaire. Examples were "the questions in the study unit were too difficult" and "the videotape presentation went too fast." No set of common remarks was found that indicated specific areas of difficulty regarding the different treatments.

## Chapter 5

### Discussion

#### Conclusions

Of the six hypotheses formulated for testing the effectiveness of the training materials, only two hypotheses were confirmed. Hypothesis 2, which compared the study unit and videotape presentation treatment to a control group, was confirmed in both Experiment 1 and Experiment 2. Hypothesis 4, which involved a comparison of the group with study unit and print version of the videotape to the control group in Experiment 1, was also confirmed. The other hypotheses on the effectiveness of the training materials were not confirmed. What is to be noted however, is that when the videotape presentation was used as part of the study unit, it was found more effective than a control group. This indicated that the method of structural communication, a method that can combine a mediated instructional presentation with structured learning activities, is an effective method of training and can be considered as appropriate for both self-paced and group-paced training applications.

The attitudes of the subjects toward the different treatments in Experiment 1 were positive, confirming hypothesis 7. The subjects in Experiment 2 indicated a positive attitude toward the videotape presentation and a neutral attitude toward the study unit. Hypothesis 8 was therefore not confirmed. However, it is of interest to note that none of the subjects in this group indicated a negative attitude toward the study unit, suggesting that they had not formed a definite opinion on the combination of the videotape presentation with study unit as a training method.

### Summary

This study investigated structural communication as a method of preparing videotape training packages in the CFITS. The literature search included a review of the documents of various training organizations that utilized a systems approach to training, including the CFITS. Particular attention was focused on the different approaches for identifying training requirements and for the selection of training media. For the most part, the document search did not indicate readily identifiable CFITS applications for the structural communication method, nor did it identify any previous application of this method with instructional videotape. However, the review did point out that a general use of theories of learning does exist for preparing training programs. As a result of reviewing various theories, this writer was able to develop a model of a continuum of learning that is suggested for use in identifying appropriate applications for the structural communication method. The training materials developed for the study were tested using Canadian Forces personnel. The results of the study indicated that structural communication was an effective method of training when videotape or text was used as the presentation medium as part of the study unit, and that the majority of subjects in the study responded favourably to it as a training method.

### Recommendations for Further Research

This study is the first known application of the structural communication method to training in the CFITS. There are several possible applications of this method to training in the CFITS, areas such as leadership and management training. One particular application

that is recommended is in training troubleshooting skills in electronics, an area that is in need of increased attention in CF training programs due to developments in technology.

It also became apparent as a result of the literature search, that further developmental research that is based on empirical measuring devices to illustrate the effectiveness of this method is required. One approach was presented as part of this study.

## Reference Notes

1. Department of National Defence. (1977). Canadian Forces Manual of Other Ranks Trade Structure. Volume I - General. CFP 123 (1).
2. Department of National Defence. (1977). Canadian Forces Manual of Individual Training. CFP 9000(1) - Part Two. pp. 3-33 to 3-64.
3. Morse, S.L. The Systems Approach to Training and Education. (1968). Unpublished Master's Thesis. Saint Mary's University, Halifax, Nova Scotia. p. 247.
4. Halliday, H.H. Project Tech Train '99. (1980). Canadian Forces Training and Material Production Center, Winnipeg, Manitoba. pp. 42-45.
5. Royal Air Force. A Guide to the Design of Learning Packages. RAF School of Education: Resources Development Unit. pp. 43-56.
6. TICCIT. (1981). "A Multi-Media System." (An information brochure). Hazeltine Corporation Educational Systems Group, 7680 Old Springhouse Rd., McLean, Virginia. 22102
7. Aagard, J.A. and Braby, R. Learning Guidelines and Algorithms for Types of Training Objectives. (March, 1976). National Technical Information Service, U.S. Department of Commerce, Springfield, VA. 22161. p. 7.
8. Mitchell, P.D. Mis-Management By (Behavioural) Objectives. Paper prepared for presentation to the Canadian Association of Professors of Education, Edmonton, June 1975. p. 22.

## References

- Atkinson, R.F., On Criteria of Values. In D. Vandenberg (Ed.), Teaching and Learning. Chicago: University of Illinois Press, 1969.
- Baccanale, D. and Mitchell, P.D., L'Efficacité de la Communication Structurale avec des sujets Holistes et Sérialistes. In G. Provost (Ed.) Les Actes de C.I.P.T.E. Quebec City: Comité interuniversitaire des professeurs de Technologie éducatif, 1981.
- Barrows, H.S., Keynote Address: problem-based learning in Medicine. In J. Clarke & J. Leedham (Eds.), Aspects of Educational Technology (Vol. X). London: Kogan Page, 1976.
- Bennett, J.G., & Hodgson, A. M. The Progress of Educational Technology. Systematics, September 1968, 6(2). 97-98.
- Blake, A., Share Success. Structural Communication Improves Training Adviser Skills. Industrial Training International, March 1971, 6(3). 77-78.
- Blake, R.R., & Mouton, J.S., Critique. Training and Development Journal, April 1976, 30(4), 5-8.
- Bloom, B.S. (Ed.), Engelhart, M.D., Furst, E.J., Hill, W.H., and Krathwohl, D.R., Taxonomy of Educational objectives. Handbook I: Cognitive domain. New York: McKay, 1956.
- Bortoft, H., Assessing Higher Educational Objectives. Systematics, June 1973, 11(1), 17.
- Branson, R.K., Rayner, G.T., Lamarr Cox, J.J., Furman, F.P., King, F.J., & Hannum, W.H., Interservice Procedures for Instructional Systems Development: Phase III Develop. Springfield, VA.: National Technical Information Service, U.S. Department of Commerce, 1975.
- Brightman, C.E., Improving Maintenance Training at Continental Airlines. Training and Development Journal, December 1975, 29(12). 46-48.
- Burch, W.J., A Comparison of Three Methods of Presenting Programmed Material. In D. Packham, A. Cleary, & T. Mayes (Eds.), Aspects of Educational Technology (Vol. V). London: Pitman, 313-319.
- Carner, R.L., An Evaluation of Teaching Reading to Elementary Pupils Through Closed-Circuit Television. Dissertation Abstracts, 1962, 23, 160-161. (In Davies, I.K., The Management of Learning. London: McGraw-Hill, 1971).
- Chu, G., & Schramm, W., Learning from Television: What the Research Says. Washington, D.C.: National Association of Educational Broadcasters, 1967.

- Coleman, D., The New Competency Tests: Matching the Right People to the Right Jobs. In Psychology Today, 15(1), January 1981, 35-46.
- Craik, M.B., Writing Objectives for Programmed Instruction or Any Instruction. In M.B. Kapfer (Ed.), Behavioral Objectives in Curriculum Development. Englewood Cliffs: Educational Technology Publications, 1971.
- Dale, E., Audio-Visual Methods in Teaching. New York: Holt, Rinehart and Winston, 1962.
- Davies, I.K., The Management of Learning. London: McGraw-Hill, 1971.
- Dubin, R., & Hedley, R.A., The Medium May be Related to the Message. Eugene, Oregon: University of Oregon Press, 1969.
- Delamontagne, J.H., Design of a supervisory Training Package. Training and Development Journal. September 1977, 31(9), 40-42.
- Educational Research Group. Structural Communication. Systematics, December 1967, 5(3), 183-273.
- Egan, K., Structural Communication - A New Contribution to Pedagogy. Programmed Learning and Educational Technology. March 1972, 9(2), 63-78.
- Egan, K., Structural Communication. Belmont, CA: Fearon Publishers, 1976.
- Ferguson, G.A., Statistical Analysis in Psychology and Education. Toronto: McGraw-Hill Book Company, 1971.
- Gagné, R.M., The Conditions of Learning, Toronto: Holt, Rinehart and Winston, Inc., 1970.
- Gagné, R.M., The Implications of Instructional Objectives for Learning. In C.M. Lindvall (Ed.), Defining Educational Objectives, Pittsburg: University of Pittsburg Press, 1963.
- Gagné, R.M., & Briggs, L.J., Principles of Instructional Design. New York: Holt, Rinehart, and Winston, Inc., 1974.
- Glass, G.V., & Stanley, J.C., Statistical Methods in Education and Psychology. Englewood Cliffs: Prentice-Hall, Inc., 1970.
- Green, T.F., A Topology of the Teaching Concept. In J.C.B. MacMillan and Nelson, T.W. (Eds), Concepts of Teaching: Philosophical Essays. Skokie, Ill: Rand McNalley, 1968. (The Concept of Teaching. In D. Vandenberg (Ed.) Teaching and Learning. Chicago: University of Illinois Press, 1969).



- Greenhill, L. P. Closed-Circuit Television for Teaching in Colleges and Universities. Pennsylvania: Pennsylvania State University, 1959.
- Gropper, G.L., Does "Programmed" Television Need Active Responding? AV Communications Review, Spring 1967, 5-22.
- Gropper, G.L., & Lumsdaine, A.A., An experimental evaluation of the contribution of sequencing, pre-testing, and active student response to the effectiveness of "programmed" TV instruction. In Studies in Televised Instruction. Report No. 3. Pittsburg: Metropolitan Pittsburg Educational Television Stations WQED-WQEX and American Institute for Research, 1961. (Chu, G., & Schramm, W. Learning from Television: What the Research Says. Washington, D.C.: National Association of Educational Broadcasters, 1967).
- Hartley, J., Evaluating Instructional Methods. In I.K. Davies & J. Hartley (Eds.), Contributions to an Educational Technology. New York: Crane, Russak and Co., Inc., 1972.
- Hodgson, A.M., Structural Programming in Education. Systematics, March 1967, 4(4), 346-370.
- Hodgson, A.M., An Experiment in Computer-Guided Correspondence Seminars for Management. In D. Packham (Ed.), Aspects of Educational Technology V. London: Pitman, 1971.
- Hodgson, A.M., Structural Communication - A New Automation Aid. In I.K. Davies & J. Hartley (Eds.), Contributions To An Educational Technology. New York: Crane, Russak and Co., Inc., 1972.
- Holroyd, C., Lever, R., Kennedy, H., Dunn, W.R., & McG. Harden, R., Programmed Instruction - Individual or Group Presentation of Audio-visual Programmes? Report on a Preliminary Investigation. In A.C. Bajpai & J.F. Leedham (Eds.), Aspects of Educational Technology (Vol. IV). London: Pitman, 1970.
- Kemp, J.R., Instructional Design. Belmont, CA.: Fearon Publishers, Inc., 1977.
- Kerr, R.H., Organizing Experience: Structuring Objectives in the Military Career. In L. Evans & J. Leedham (Eds.), Aspects of Educational Technology V. London: Kogan Page, 1975.
- Knerr, C.S., Downey, R.G., & Kessler, J.J., Training Individuals in Army Units: Comparative Effectiveness of Selected TEC Lessons and Conventional Methods. U. S. Army Research Institute for the Behavioral and Social Sciences, 1300 Wilson, Blvd., Arlington, VA., September 1975. (Research Report 1188)
- Lawson, T.E., Gagné's Learning Theory Applied to Technical Instruction. Training and Development Journal, April 1974, 28(4), 32-40.

- Lehman, H., The Systems Approach to Education. In M.B. Kapfer (Ed.), Behavioral Objectives in Curriculum Development. Englewood Cliffs: Educational Technology Publications, 1971.
- Loree, M.R., Creativity and the Taxonomies of Educational Objectives. In M.B. Kapfer (Ed.), Behavioral Objectives in Curriculum Development. Englewood Cliffs: Educational Technology Publications, 1971.
- Lovejoy, E.P. Statistics for Math Haters. New York: Harper & Row, Publishers, 1975.
- Mager, R.F., The "Winds of Change." Training and Development Journal October 1977, 12-20.
- Miller, G.G., The Relevance of Cognitive Psychology to Instructional Psychology. Proceedings of the Interservice/Industry Equipment Conference and Exhibition, 1980, 166-170.
- Millerson, G., The Technique of Television Production. New York: Focal Press, 1975.
- Miner, C.J., Business TV: has it kept its promise? Canadian Training Methods, June 1976, 16-19.
- Montemerlo, M.D., Re-Uniting ISD and Systems Analysis. Paper presented at the American Psychological Association National Convention, San Francisco, August 1977.
- Montemerlo, M.D., & Harris, W.A., Avoiding the Pitfalls of ISD. Paper presented at Sixth Psychology in DoD Symposium, U.S. Air Force Academy, Colorado, April, 1978.
- Montemerlo, M.D., & Tennyson, M.E., Instructional Systems Development: Conceptual Analysis and Comprehensive Bibliography. Report prepared for the Naval Training Equipment Center, NAVTRAEQUIPCEN IH-257, Orlando, 1976.
- Morse, S.L., Educational Technology and the Behavioural Objective. In A.C. Bajpai & J.F. Leedham (Eds.), Aspects of Educational Technology IV. London: Pitman, 1970.
- Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K., and Bent, D.H., Statistical Package for the Social Sciences. Toronto: McGraw-Hill Book Company, 1975.
- Renckly, T.R., Refining the Instructional Systems Concept: Some Experiences from Military Training. Educational Technology, March 1980, 26-30.
- Raphael, M.A., & Wagner, E.E., Training via Text, Audio Tape of TV Makes a Difference: or Does it? Training and Development Journal, December 1974, 28(12), 3-5.
- Schramm, W., Big Media, Little Media. Beverly Hills: SAGE Publications, 1977.

Siegel, A.I., Musetti, L.L., Federman, P.J., Pfeiffer, M.G., Weisen, J.P., DeLeo, P.J., and Shepperd, W.R., Criterion Referenced Testing: Review, Evaluation, and Extension. Brooks Air Force Base, Texas. Air Force Systems Command, August 1979.

Taylor, D.R., Lipscomb, E., and Rosemeir, R. Live versus videotaped student teacher interaction. AV Communications Review. 1969, 17(1), 47-51. (In Davies, I.K., The Management of Learning. London: McGraw-Hill, 1971).

Tuckman, B.W., Conducting Educational Research. New York: Harcourt, Brace, Jovanovich, Inc., 1972.

Tyler, R.W., Basic Principles of Curriculum and Instruction. Chicago: University of Chicago Press, 1949.

USAF. Principles and Techniques of Instruction. AFM 50-9. Alabama: Air University, 1967

USAF. Handbook for Designers of Instructional System. (Vol IV). AFP 50-58. Department of the Air Force, Washington, D.C., 1973.

USAF. Instructional Systems Development AFM 50-2. Department of the Air Force, Washington, D.C., 1975.

USAF. Handbook for Designers of Instructional Systems. (Vol. IV). AFP 50-58. Department of the Air Force, Washington, D.C., 1978a.

USAF. Handbook for Designers of Instructional Systems. (Vol. VI). AFP 50-58. Department of the Air Force, Washington, D.C., 1978b.

Williams, F.E., Models for Encouraging Creativity in the Classroom by Integrating Cognitive-Affective Behaviors. In M.B. Kapfer (Ed.), Behavioral Objectives in Curriculum Development. Englewood Cliffs: Educational Technology Publications, 1971.

Zetlin, N., & Goldberg, A.L., Structural Communication: An Interactive System for Teaching Understanding. In The Educational Technology Review Series (Individualizing Instruction). Englewood Cliffs: Prentice Hall, 1970.

APPENDIX A

APPENDIX A: A VIDEOTAPE SCRIPT FOR A PROGRAM ON THE CANADIAN FORCES  
INDIVIDUAL TRAINING SYSTEM (CFITS)

PRODUCER/DIRECTOR: Albert J. Madsen

PROGRAMME OBJECTIVE: To present the processes, documentation, and responsible organizations that constitute the CFITS.

TARGET AUDIENCE: Canadian Forces Personnel who have been selected to attend the Canadian Forces Classroom Instructor Course.

BEHAVIORAL OBJECTIVE

1. PERFORMANCE: to identify the processes, documents, and responsible organizations within the CFITS.
2. CONDITIONS: from memory.
3. STANDARD: to include a 12-item multiple choice test, representative of the following:
  - a) Job Analysis - Trade/Classification Specifications (National Defence Headquarters)
  - b) Training Design - Course Training Standards/On-Job Training Standards (designated Commands)
  - c) Training Conduct - Course Training Plans/On-Job Training Plans (School/Units)
  - d) Evaluation - Performance/Enabling Checks (School/Units)
  - e) Validation - On-Site interviews and Questionnaires (Commands, Schools, and Operational Units)

---

TECHNICIANS

TALENT.

---

SHOT 1

CUE DISC

TAKE TELECINE  
(SLIDE 1)

---

SHOT 2

CHANGE SLIDE  
(SLIDE 2)

---

SHOT 3

TAKE VTR INSERT #1  
SUPER CHARACTER GENERATOR  
LOSE SUPER

---

SHOT 4

CAMERA 2 = LS OF HOST  
AND GUEST

FADE OUT DISC

CUE HOST

\*ZOOM IN TO MCU OF  
HOST AND GUEST

(HOST) THE SHIP, TRUCKS, AND AIRCRAFT THAT  
YOU HAVE BEEN WATCHING ARE OPERATED,  
MAINTAINED, AND REPAIRED BY TRADESMEN IN  
THE CANADIAN FORCES. \* THE ABILITY TO  
PERFORM THESE DUTIES EFFECTIVELY AND  
EFFICIENTLY DEPENDS DIRECTLY ON THE TRAIN-

---

TECHNICIANS

TALENT

---

ING THAT THESE PERSONNEL ARE GIVEN.

MY NAME IS CPL FIKA.

---

SHOT 5

CAMERA 1 - MCU GUEST

(GUEST) I'M MCPL ARSENAULT. IN THIS PROGRAM WE ARE GOING TO EXPLAIN THE MAIN FEATURES OF THE INDIVIDUAL TRAINING SYSTEM. WE WILL DISCUSS THE PROCESSES OF THE SYSTEM AND WHAT THEY CONSIST OF, AND THE MANNER IN WHICH THEY ARE CARRIED OUT.

---

SHOT 6

CAMERA 2 - MCU HOST

(HOST) A SYSTEM IS A PREDICTABLE AND SYSTEMATIC WAY OF DOING THINGS. TO HELP YOU UNDERSTAND HOW OUR TRAINING SYSTEM OPERATES, YOU NEED TO KNOW SOMETHING ABOUT ITS COMPONENTS AND PROCESSES.

---

SHOT 7

CAMERA 1 - MLS OF HOST  
AND GUEST

(GUEST) WHY DO WE CALL IT AN INDIVIDUAL TRAINING SYSTEM? EVERY PERSON THAT JOINS THE CANADIAN FORCES REQUIRES SOME TYPE OF TRAINING TO PREPARE HIM TO DO HIS JOB. IN ORDER TO MAKE A PERSON COMPETENT AND

---

TECHNICIANS

TALENT

---

PROFICIENT IN A PARTICULAR TRADE, WE MUST  
PROVIDE TRAINING,

---

SHOT 8

TAKE TELECINE  
(SLIDE 3)

EITHER IN A SCHOOL, ON-THE-JOB, OR BOTH.

---

SHOT 9

CHANGE SLIDE  
(SLIDE 4)

THIS REQUIRES THAT TRAINING PROGRAMS BE  
SET UP,

---

SHOT 10

CAMERA 1 - MLS HOST  
AND GUEST

AND CAREFULLY CONTROLLED TO ENSURE THAT  
EACH INDIVIDUAL TRADESMAN RECEIVES THE  
NECESSARY TRAINING REQUIRED TO PERFORM THE  
DUTIES AT THE VARIOUS TRADE LEVELS.  
THIS IS ESSENTIALLY WHY WE CALL IT THE  
INDIVIDUAL TRAINING SYSTEM.

---

SHOT 11

CAMERA 2 - MCU HOST

(HOST) THIS APPROACH IS CONCERNED WITH THE  
TRAINING OF THE INDIVIDUAL...WE SOMETIMES  
REFER TO IT AS THE TRAINEE CENTERED OR  
STUDENT CENTERED APPROACH.

---



---

TECHNICIANS

TALENT

---

SHOT 12

TAKE TELECINE  
(SLIDE 5)

WE ARE CONCERNED WITH THE INDIVIDUAL, WE  
CONCENTRATE ON WHAT HE NEEDS TO KNOW, AND BE  
ABLE TO DO, AND THE MEANS THAT WE CAN  
UTILIZE TO HELP HIM ACQUIRE THIS.

---

SHOT 13

CAMERA 1 - MCU GUEST

(GUEST) LET'S TAKE A LOOK AT THE FIVE  
PROCESSES OF THE INDIVIDUAL TRAINING  
SYSTEM... IN ORDER TO DETERMINE OUR  
TRAINING REQUIREMENTS WE EXAMINE WHAT A  
SKILLED TRADESMAN DOES ON THE JOB.

---

SHOT 14

\*DISSOLVE TO TELECINE  
(SLIDE 6)

\*SUPER GRAPHIC #1  
\*\*LOSE SUPER

\*BY OBSERVING THE SKILLED TRADESMAN AT WORK  
WE ARE ABLE TO IDENTIFY THOSE DUTIES THAT  
HE ACTUALLY DOES. THIS PROCESS...\*\*

---

SHOT 15

CHANGE SLIDE  
(SLIDE 7)

IS CALLED JOB ANALYSIS. IT IS PERFORMED  
FOR EVERY TRADE IN THE CANADIAN FORCES. WE  
ALSO STUDY THE TECHNICAL ORDERS AND  
PUBLICATIONS THAT APPLY TO THE TRADE. JOB

---

TECHNICIANS

TALENT

---

ANALYSIS IS THE PROCESS WE USE TO DEFINE  
THE DUTIES OF EVERY TRADE.

---

SHOT 16

CAMERA 2 - MCU HOST

(HOST) ONCE WE HAVE DETERMINED THE DUTIES  
OF THE TRADE, WE EXAMINE THEM AND DECIDE  
WHICH ARE BEST TAUGHT ON THE JOB AND WHICH  
ARE BEST TAUGHT BY MEANS OF COURSES.

\*SUPER GRAPHIC #2

THIS ALLOTING OF DUTIES IS DONE FOR EACH  
TRADE QUALIFICATION LEVEL. \* THIS PROCESS

\*\*LOSE SUPER

IS CALLED TRAINING DESIGN.\*\*

---

SHOT 17

TAKE TELECINE  
(SLIDE 8)

(GUEST) ONCE THE TRAINING DESIGN IS DONE,  
WE PROCEED TO CARRY OUT THE TRAINING.

---

SHOT 18

CHANGE SLIDE  
(SLIDE 9)

THIS THIRD PROCESS IS CALLED THE  
CONDUCT OF TRAINING. \*CONDUCT OF

\*SUPER GRAPHIC #3

TRAINING IS DONE ON THE JOB FOR  
THOSE DUTIES THAT HAVE BEEN ASSIGNED  
TO ON-JOB TRAINING.\*\*

---

\*\*LOSE SUPER

---

TECHNICIANS

TALENT

---

SHOT 19

CHANGE SLIDE  
(SLIDE 10)

TRAINING IS DONE AT A SCHOOL FOR THE  
DUTIES THAT HAVE BEEN ASSIGNED TO A  
COURSE.

---

SHOT 20

CAMERA 2 - MCU HOST

\*SUPER GRAPHIC #4

\*\*LOSE SUPER

(HOST) ONCE THE TRAINING HAS BEEN  
CONDUCTED, \*WE HAVE TO EVALUATE  
WHETHER OR NOT THE TRAINEES HAVE  
LEARNED WHAT THEY WERE SUPPOSED TO  
LEARN. ON THE JOB THIS IS NORMALLY  
\*\*DONE BY THE INDIVIDUAL'S SUPERVISOR.

---

SHOT 21

TAKE TELECINE  
(SLIDE 11)

EVALUATION AT A SCHOOL IS CONDUCTED  
BY THE INSTRUCTORS AND THE SCHOOL  
STANDARDS COMPANY.

---

SHOT 22

CAMERA 1 - MCU GUEST

(GUEST) THE FINAL PROCESS IN THE TRAINING  
SYSTEM IS CONCERNED WITH THE GRADUATES OF  
THE COURSES. IF WE WERE TO ASSUME THAT OUR  
COURSES MET THE JOB REQUIREMENTS IN ALL  
RESPECTS, WE WOULD INDEED BE FOOLISH. WE

---

TECHNICIANS

TALENT

---

CAN NEVER BE CERTAIN THAT OUR TRAINING PROGRAMS ARE THAT GOOD. BUT WE CAN ASK THE SUPERVISORS WHO RECEIVE OUR GRADUATES TO TELL US...

---

SHOT 23

TAKE TELECINE  
(SLIDE 12)

HOW WELL OUR TRAINING PROGRAMS HAVE PREPARED THEM FOR THEIR JOBS. \*SO, FROM TIME TO TIME, WE CHECK WITH THEM IN THIS REGARD.

\*SUPER GRAPHIC #5

---

SHOT 24

CHANGE SLIDE  
(SLIDE 13)

THE PROCESS OF CHECKING TO DETERMINE IF THE TRAINING PROGRAM HAS PREPARED \*\*THE INDIVIDUAL TO DO THE JOB IS CALLED VALIDATION.

\*\*LOSE SUPER

---

SHOT 25

CHANGE SLIDE  
(SLIDE 14)

(HOST) IN SUMMARY, HERE \*ARE THE FIVE PROCESSES: JOB ANALYSIS, TRAINING DESIGN, CONDUCT OF TRAINING, EVALUATION AND VALIDATION.\*\*

\*SUPER GRAPHIC #6  
\*\*LOSE SUPER

---

SHOT 26

CAMERA 1 - MLS OF HOST  
AND GUEST

(GUEST) UP TO THIS POINT WE HAVE BEEN CONCERNED WITH

---

TECHNICIANS

TALENT

---

PROCESSES THAT PROVIDE THE  
CANADIAN FORCES WITH SKILLED  
TRADESMEN. WHAT HAPPENS WHEN  
THESE TRADESMEN BECOME  
QUALIFIED? HERE ARE A COUPLE  
OF EXAMPLES:

---

SHOT 27

TAKE VTR INSERT #2

---

SHOT 28

TAKE TELECINE  
(SLIDE 15)

(HOST) THE SYSTEMS APPROACH  
TO TRAINING WAS ADOPTED  
IN 1967.

---

SHOT 29

CAMERA 2 - MCU HOST

IT HAS HAD QUITE AN EFFECT ON THE  
MANNER IN WHICH WE DOCUMENT OUR  
TRAINING. BEFORE LOOKING AT THIS  
ASPECT OF TRAINING, IT IS OF INTEREST  
TO NOTE THAT EACH OF THE THREE OPERA-  
TIONAL COMMANDS IS RESPONSIBLE FOR  
CARRYING OUT THE TRAINING FOR THOSE

---

TECHNICIANS

TALENT

---

TRADES THAT ARE EXCLUSIVE TO THE  
COMMAND.

---

SHOT 30

TAKE TELECINE  
(SLIDE 16)

FOR EXAMPLE, MOBILE COMMAND IS RESPONSIBLE  
FOR THE TRAINING IN SUCH TRADES AS  
INFANTRYMAN.

---

SHOT 31

CHANGE SLIDE  
(SLIDE 17)

MARITIME COMMAND LOOKS AFTER THE TRAINING  
FOR TRADES LIKE SONARMAN...

---

SHOT 32

CHANGE SLIDE  
(SLIDE 18)

AND AIR COMMAND IS CONCERNED WITH SUCH  
TRADES AS AD TECH.

---

SHOT 33

CAMERA 2 - MCU HOST

FOR THOSE TRADES THAT ARE APPLICABLE TO  
MORE THAN ONE COMMAND, SUCH AS COOK OR  
MEDICAL ASSISTANT, THE TRAINING IS CARRIED  
OUT IN THOSE SCHOOLS THAT BELONG TO THE  
CANADIAN FORCES TRAINING SYSTEM HEAD-

---

TECHNICIANS

TALENT

---

QUARTERS. EACH COMMAND IS REQUIRED TO FOLLOW THE PROCESSES OF THE ITS.

---

SHOT 34

TAKE TELECINE

IN THIS WAY WE HAVE A STANDARD AND SYSTEMATIC APPROACH TO TRAINING THROUGHOUT THE FORCES.

---

SHOT 35

CAMERA 1 - MCU OF GUEST

\*ZOOM OUT TO MLS OF HOST AND GUEST

(HOST) WHAT I'M GOING TO DO NOW IS ASK MCPL ARSENAULT SOME QUESTIONS ABOUT THE PUBLICATIONS USED IN THE ITS. \*HIS ANSWERS WILL HELP YOU TO IDENTIFY THE VARIOUS DOCUMENTS AND ALSO TELL YOU A BIT ABOUT THEIR CONTENTS.... WE HAVE SAID THAT THE FIRST PROCESS IS JOB ANALYSIS. WHO IS RESPONSIBLE FOR DOING IT?

(GUEST) NATIONAL DEFENCE HEADQUARTERS.

(HOST) THE RESULTS OF THE JOB ANALYSIS, THE LISTING OF THE DUTIES AND TASKS THAT MAKE UP THE TRADE, THESE ARE PUBLISHED AS TRADE SPECIFICATIONS AND EACH HAS A CODE ASSIGNED TO IT. COULD YOU EXPLAIN A BIT ABOUT THE CODING SYSTEM?

(GUEST) FOR EXAMPLE, THE AIRFRAME TECHNICIANS HAS A CODE OF 512. OTHER TRADES WILL

---

TECHNICIANS

TALENT

---

HAVE A SIMILAR, BUT UNIQUE NUMBER ASSIGNED TO THEM.

---

SHOT 36

CAMERA 2 - CU OF GRAPHIC #7 ALL TRADES, WITH THEIR RESPECTIVE CODES, ARE PUBLISHED IN A SERIES KNOWN AS THE MANUAL OF OTHER RANKS TRADE STRUCTURE. THIS SERIES OF PUBLICATIONS, THERE ARE ELEVEN VOLUMES, IS KNOWN AS THE CFP 123(2) SERIES. YOU WILL FIND A DESCRIPTION OF EVERY TRADE IN THE FORCES IN THIS MANUAL. SINCE THERE ARE OVER 100 TRADES IN THE FORCES, YOU CAN SEE WHY A SERIES IS NEEDED. IN PART SIX OF THE SERIES, AS SHOWN HERE, YOU WILL FIND THOSE TRADES THAT ARE CODED FROM 511 TO 599.

---

SHOT 37

CAMERA 1 - MCU HOST  
AND GUEST

SIMILARLY IN PART ONE YOU WOULD FIND THOSE TRADES THAT ARE CODED FROM 011 TO 099. (HOST) WHAT ELSE IS INCLUDED IN A TRADE SPECIFICATION? (GUEST) EACH SPECIFICATION STARTS OFF WITH AN EXPLANATION OF THE SCOPE OF THE TRADE. IT INCLUDES THE GENERAL FUNCTIONS OF THE TRADE, SUCH AS THE EQUIPMENT THAT A TRADESMAN IS REQUIRED TO



---

TECHNICIANS

TALENT

---

OPERATE OR MAINTAIN, AND A DESCRIPTION OF ADMINISTRATIVE AND OTHER DUTIES. IT ALSO GIVES THE SPECIAL REQUIREMENTS FOR TRADE PROGRESSION, IF ANY, AND WILL STATE THE SECURITY CLEARANCE, MEDICAL STANDARD AND ANY PRIOR QUALIFICATIONS NEEDED. IT FURTHER PROVIDES A DESCRIPTION OF THE WORKING CONDITIONS FOR THE TRADE.

(HOST) WHAT ABOUT THE LISTING OF THE TASKS AND DUTIES WE WERE DISCUSSING EARLIER?

---

SHOT 38

CAMERA 2 - CU GRAPHIC #8

(GUEST) HERE IS AN EXAMPLE. ACROSS THE TOP YOU WILL NOTICE THAT THERE ARE THREE CATEGORIES: EACH CATEGORY HAS FOUR LEVELS OF COMPETENCY... UNDER TASK INVOLVEMENT THE DEGREE OF INVOLVEMENT IS CODED WITH CAPITAL LETTERS. FOR THE KNOWLEDGE CATEGORY, SMALL LETTERS ARE USED. AND, UNDER THE SKILLS CATEGORY, YOU WILL NOTICE NUMBERS. ON THE LEFT HAND SIDE YOU SEE A LISTING OF THE TASKS AND DUTIES..

---

---

TECHNICIANS

TALENT

---

SHOT 39

CAMERA 1 - MCU HOST  
AND GUEST

(HOST) WHAT ARE TRADE SPECIALTY SPECIFICATIONS? (GUEST) A TRADE SPECIALTY SPECIFICATION, OR TSS, IS COMPOSED OF ADDITIONAL SKILLS AND KNOWLEDGE REQUIRED TO PERFORM A JOB THAT IS NOT COMMON TO ALL MEMBERS OF THE TRADE, AND WHICH WOULD BE TOO EXPENSIVE TO TRAIN EVERYONE IN THAT TRADE. FOR EXAMPLE, AN AIRFRAME TECH WHO WORKS ON THE HERCULES AIRCRAFT WOULD NOT REQUIRE TRAINING ON ALL THE DIFFERENT TYPES OF AIRCRAFT WE HAVE IN THE FORCES. A TSS THAT IS UNIQUE TO ONE TRADE HAS A NUMERICAL CODE.

---

SHOT 40

CAMERA 2 - GRAPHIC #9

FOR EXAMPLE, TSS'S APPLICABLE ONLY TO THE AIRFRAME TRADE WOULD BE CODED 512.01, 512.02, AND SO ON. WHEN A TRADE SPECIALTY IS APPLICABLE TO MORE THAN ONE TRADE, IT IS GIVEN A LETTER CODE SUCH AS AA OR PQ. THE TRADE SPECIALTY SPECIFICATIONS ARE PUBLISHED IN A SERIES KNOWN AS CFP 123(4).

---

TECHNICIANS

TALENT

---

SHOT 41

CAMERA 1 - MLS HOST  
AND GUEST

(HOST) HOW ARE TRADE SPECIFICATIONS USED FOR TRAINING? (GUEST) THEY SERVE AS GUIDES FOR THE DESIGN PROCESS. THE COMMAND THAT IS RESPONSIBLE FOR THE TRAINING IN A PARTICULAR TRADE WILL SET UP A WRITING TEAM TO PRODUCE A COURSE TRAINING STANDARD, ALSO CALLED A CTS, AN ON JOB TRAINING STANDARD, OR BOTH. THE TRAINING STANDARDS THAT THIS TEAM PRODUCES ARE BASED DIRECTLY ON THE TRADE SPECIFICATION.

---

SHOT 42

CAMERA 2 - GRAPHIC #10

(HOST) WHAT DOES A CTS OR OJTS LOOK LIKE? (GUEST) THESE PUBLICATIONS HAVE A NUMBERING SYSTEM LIKE THIS: CFP, WHICH STANDS FOR CANADIAN FORCES PUBLICATION, 9 WHICH STANDS FOR THE 9000 SERIES THAT HAS BEEN ALLOTTED FOR TRAINING PUBLICATIONS...THIS IS FOLLOWED BY THREE NUMBERS THAT REPRESENT A TRADE, IF IT IS UNIQUE TO ONE TRADE, FOLLOWED BY A "J" IF IT CONCERNS ON-JOB TRAINING, OR A "C" IF IT CONCERNS A COURSE. A FINAL NUMBER WILL TELL YOU WHAT TRADE QUALIFICATION

---

TECHNICIANS

TALENT

---

\*CHANGE GRAPHIC

(GRAPHIC #11)

LEVEL IT IS. \*BY THE WAY, FOR THE TRADE SPECIALTY COURSES THAT ARE COMMON TO MORE THAN ONE TRADE, LIKE THIS ONE HERE, YOU WILL SEE CFP 999(4)d FOLLOWED BY THE CODE IN LETTERS.

---

SHOT 43

CAMERA 1 -MLS HOST  
AND GUEST

(HOST) THE TASKS OF THE TRADE SPECIFICATIONS ARE WRITTEN UP IN THESE TRAINING STANDARDS IN THE PERFORMANCE OBJECTIVE FORM. THIS FORM CONSISTS OF THREE PARTS:

---

SHOT 44

TAKE TELECINE  
(SLIDE 20)

A PERFORMANCE STATEMENT, THE CONDITIONS UNDER WHICH THE TRAINEE WILL HAVE TO PERFORM WHEN HE IS EVALUATED, AND THE STANDARD THAT TELLS WHAT HE MUST DO AND HOW WELL HE MUST DO IT.

---

SHOT 45

CHANGE SLIDE  
(SLIDE 21)

\*SUPER GRAPHIC #12

LET ME GIVE YOU AN EXAMPLE: ONE OF THE TASKS FOR THE INFANTRYMAN IS \*FIRE THE

---

TECHNICIANS

TALENT

---

\*\*LOSE SUPER

MEDIUM ANTI-ARMOUR WEAPON. THIS TASK IS WRITTEN UP IN THE PERFORMANCE OBJECTIVE FORMAT \*\* IN THE COURSE TRAINING STANDARD OR ON-JOB TRAINING STANDARD. THIS TELLS US PRECISELY WHAT HE WILL DO,

---

SHOT 46

CHANGE SLIDE  
(SLIDE 22)

\* THE CONDITIONS UNDER WHICH HE WILL DO IT, AND THE STANDARD OF HOW WELL IT MUST BE DONE. THESE TRAINING STANDARDS STATE HOW WELL THE TRADESMAN MUST BE ABLE TO PERFORM THE TASK WHEN HE HAS COMPLETED TRAINING.

---

SHOT 47

CAMERA 2 - MCU HOST

ON-JOB TRAINING STANDARDS ARE SENT TO THE OPERATIONAL UNITS WHERE THE PERSON WILL RECEIVE TRAINING ON-THE-JOB. THEY PROVIDE A GUIDE TO THE SUPERVISOR OF THE INDIVIDUAL. WHAT HAPPENS TO THE COURSE TRAINING STANDARDS?

---

SHOT 48

CAMERA 1 - MCU GUEST

(GUEST) THESE ARE SENT TO THE SCHOOL, THAT IS RESPONSIBLE FOR CONDUCTING THE COURSE. BUT REMEMBER, THE CTS ONLY IN-

---

TECHNICIANS

TALENT

---

INDICATES WHAT THE TRAINEES MUST BE ABLE TO DO AT THE END OF TRAINING. IT DOES NOT STATE THE VARIOUS THINGS THAT HAVE TO BE TAUGHT TO GET HIM TO THE STATED LEVEL.

---

SHOT 49

CAMERA 2 - MCU HOST  
AND GUEST

(HOST) THE COMMANDANT OF THE SCHOOL WILL GET TOGETHER A GROUP OF HIS INSTRUCTORS AND SCHOOL STANDARDS PERSONNEL AND THEY WILL PERPARE A COURSE TRAINING PLAN. IT IS THEIR JOB TO IDENTIFY THE ENABLING SKILLS AND KNOWLEDGE THAT WILL NEED TO BE TAUGHT TO THE TRAINEES ON COURSE. (GUEST) THESE ENABLING SKILLS AND KNOWLEDGE ARE WRITTEN UP USING THE SAME THREE-PART FORMAT.

---

SHOT 50

TAKE TELECINE  
(SLIDE 23)

1. A PERFORMANCE STATEMENT
  2. THE CONDITIONS
  3. THE STANDARD
- 

SHOT 51

CHANGE SLIDE  
(SLIDE 24)  
\*SUPER GRAPHIC #13  
\*\*LOSE SUPER

HERE IS AN EXAMPLE OF SOME \* OF THE SKILLS AND KNOWLEDGE FOR FIRING THE MEDIUM ANTI-ARMOUR WEAPON.\*\*

---

---

TECHNICIANS

TALENT

---

SHOT 52

CAMERA 2 - MCU HOST

(HOST) THE COURSE TRAINING PLAN IS WHAT THE INSTRUCTORS AT THE SCHOOL WILL USE WHEN RUNNING THE COURSE. DOES IT HAVE A CFP NUMBER AS WELL?

---

SHOT 53

CAMERA 1 - MCU GUEST

(GUEST) NO. THE CTP IS USED ONLY AT THE SCHOOL AND IT IS NOT GIVEN A NUMBER. SOME OF THE THINGS INCLUDED IN THE CTP ARE: RECOMMENDED TEACHING METHODS FOR EACH ENABLING OBJECTIVE, RECOMMENDED TRAINING AIDS, AND THE TIME TO BE TAKEN FOR EACH ENABLING OBJECTIVE.

---

SHOT 54

CAMERA 2- MCU HOST  
AND GUEST

(HOST) THE FOURTH PROCESS OF THE ITS IS EVALUATION. DURING THE COURSE, THE TRAINEES ARE EVALUATED WITH ENABLING CHECKS WHEN THEY COMPLETE EACH ENABLING OBJECTIVE. TRAINEES ARE ALSO EVALUATED AT THE END OF THE COURSE BY PERFORMANCE CHECKS. IS THERE ANYTHING ELSE TO THE EVALUATION PROCESS?

---

SHOT 55

CAMERA 1 - MCU GUEST

(GUEST) NOT FROM THE STUDENTS' POINT OF VIEW. HOWEVER, THE SCHOOL'S STANDARDS

---

TECHNICIANS

TALENT

---

PERSONNEL USE THE RESULTS OBTAINED FROM THE PERFORMANCE CHECKS TO DETERMINE WHICH AREAS OF THE COURSE NEED IMPROVING.

---

SHOT 56

TAKE TELECINE  
(SLIDE 25)

THEY MIGHT FIND THAT THE RECOMMENDED TEACHING METHOD OR THE TRAINING AIDS COULD BE IMPROVED.

---

SHOT 57

CHANGE SLIDE  
(SLIDE 26)

THE ONLY DOCUMENTATION THAT IS MAINTAINED IN THE EVALUATION PROCESS CONSISTS OF THE RECORDS OF TRAINEES' PROGRESS.

---

SHOT 58

CAMERA 2 - MCU HOST

(HOST) THAT BRINGS US TO THE FINAL PROCESS, VALIDATION. HOW IS IT CARRIED OUT?

(GUEST) THE COMMAND ORGANIZATION THAT IS RESPONSIBLE FOR THE SCHOOL WILL NORMALLY

---

SHOT 59

CAMERA 1 - MLS HOST  
AND GUEST

CONDUCT THIS PROCESS BY MEANS OF A QUESTIONNAIRE. QUESTIONNAIRES ARE NORMALLY PRODUCED WITH THE HELP OF SCHOOL STANDARDS PERSONNEL. A QUESTIONNAIRE CONSISTS OF A RATING SCALE FOR EACH OF THE PERFOR-



---

TECHNICIANS

TALENT

---

MANCE OBJECTIVES TAUGHT ON COURSE. THE QUESTIONNAIRE IS NORMALLY FILLED OUT BY THE SUPERVISOR OF THE GRADUATE. AFTER THE DATA HAS BEEN COLLECTED, IT IS ANALYZED AT THE COMMAND. IT WILL SUBSEQUENTLY NOTIFY THE SCHOOL OF ANY PROBLEM AREAS. VALIDATION IS NOT CONDUCTED FOR EVERY COURSE THAT IS RUN, BUT IT IS DONE PERIODICALLY.

---

SHOT 60

CAMERA 2 - MCU HOST

\*SUPER GRAPHIC #14

\*\*LOSE SUPER

(HOST) THE QUESTIONNAIRE IS NOT THE ONLY MEANS OF CONDUCTING VALIDATION. IT MAY ALSO BE DONE BY \*AN ON-SITE INTERVIEW. HOWEVER, THIS WAY IS MORE COSTLY AND TIME CONSUMING, \*\*AND IS DONE ONLY FOR THOSE SITUATIONS WHEN THE QUESTIONNAIRE IS INAPPROPRIATE.

---

SHOT 61

CAMERA 1 - MCU GUEST

(GUEST) IN THIS PROGRAM WE HAVE EXPLAINED THE FIVE PROCESSES OF THE INDIVIDUAL TRAINING SYSTEM...AND WE DISCUSSED THE VARIOUS SPECIFICATIONS AND PUBLICATIONS THAT ARE USED TO CONTROL THE TRAINING

---

TECHNICIANS

TALENT

---

PROCESSES. WE ALSO POINTED OUT WHO IS RESPONSIBLE FOR EACH PROCESS.

---

SHOT 62

CAMERA 2 - MS HOST  
AND GUEST

\*SUPER GRAPHIC

\*\*LOSE SUPER

(HOST) YOU MIGHT BE INTERESTED TO KNOW THAT THESE PROCESSES ALSO APPLY TO OFFICER TRAINING. HOWEVER, OFFICER SPECIFICATIONS ARE PUBLISHED IN THE \*CFP 150 SERIES, AND THE TRAINING DOCUMENTS THAT DESCRIBE THE COURSES, SUCH AS THE COURSE TRAINING STANDARDS, ARE PUBLISHED IN THE CFP 8000 SERIES.\*\*

---

SHOT 63

CAMERA 1 - MCU GUEST

(GUEST) REMEMBER, WHEN YOU WANT TO KNOW SOME INFORMATION

---

SHOT 64

TAKE TELECINE  
(SLIDE 27)

ABOUT THE TASKS AND DUTIES OF A PARTICULAR TRADE,

---

SHOT 65

CAMERA 1 - MCU GUEST

YOU CAN LOOK IT UP IN THE CFP 123(2) SERIES, TRADE SPECIFICATIONS, OR CFP 123(4), TRADE SPECIALTY SPECIFICATIONS.

---

---

TECHNICIANS

TALENT

---

SHOT 66

CAMERA 2 - MCU HOST

(HOST) AND WHEN YOU WANT TO KNOW SOMETHING ABOUT THE TRAINING SYSTEM PROCESSES OR TRAINING PROGRAMS, YOU CAN FIND IT BY REFERRING TO THE CFP 9000 SERIES. THE PUBLICATIONS ARE NORMALLY AVAILABLE TO YOU THROUGH THE BASE INDIVIDUAL TRAINING OFFICER. IF IN DOUBT, CHECK IT OUT.  
THANK YOU FOR YOUR ATTENTION.\*

CUE DISC

\*ZOOM OUT TO LS OF

HOST AND GUEST

SUPER CHARACTER GENERATOR

FADE DISC

FADE TO BLACK

---

APPENDIX B

## Appendix B: Printed Text Version of the Videotape Script

### The Canadian Forces Individual Training System (CFITS)

The purpose of this paper is to explain the main features of the Individual Training System of the Canadian Forces. You will be presented with the processes of the system, what they consist of, and the manner in which they are carried out.

#### An Individualized System

The ships, trucks, aircraft and other equipment that are used in the Canadian Forces are operated, repaired, and maintained by skilled tradesmen. Their ability to perform these duties effectively and efficiently depends directly on the system of training that is used.

A system is simply a predictable and systematic way of doing things. To understand how a system operates, you need to know something about the way the components and processes are organized.

Why do we call it an Individual Training System? Every person who joins the Canadian Forces requires some type of training to prepare him to do his job. In order to make this person competent and proficient in a particular trade, we must provide him with training, either in a school, on-the-job, or both. This requires that training programs be set up and carefully controlled to ensure that each individual tradesman receives the necessary training required to perform the duties at the various trade levels. This is essentially why we call it an Individual Training System. We sometimes refer to it as trainee-centered or student-centered. We are concerned with the individual - we concentrate on what he needs to know and be able to do, and the means that we can use to properly train him.

#### The Processes.

1. Job Analysis: In order to determine our training requirements, we examine what the skilled tradesman does on the job. By observing him at work we are able to identify those duties that he actually does. This process is called Job Analysis. It is performed for every trade in the Canadian Forces. We also study the technical orders and publications that apply to the trade. Job Analysis is therefore the process that we use to identify the duties for each trade.

2. Training Design: Once we have determined the duties of a trade, we examine them and decide which are best taught on the job and which are best taught by means of a course. This allotting of duties is done for each Trade Qualification Level. This process is called Training Design.

3. Conduct of Training: Once the training design is done, we proceed to carry out the training. This third process is called the Conduct of Training. It is done on-the-job for those duties that have been

assigned to ON-JOB training. Training is done at a school for those duties that have been assigned to a course.

4. Evaluation: Once the training has been conducted, we need to evaluate whether or not the trainees have learned what they were supposed to learn. On the job this is normally done by the individual's supervisor. Evaluation at a school is conducted by the instructors and the School Standards Company.

5. Validation: The final process in the training system is concerned with the graduates of the courses. If we were to assume that our courses met the job requirements in all respects, we would indeed be foolish. We can never be certain that our training programs are that good. But we can ask the supervisors who receive our graduates to tell us how well our training programs have prepared them for their jobs. The process of checking to determine if the training program has prepared the individual to do the job is called validation.

In summary, the five processes of the CFITS are: Job Analysis, Training Design, Conduct of Training, Evaluation, and Validation.

#### How the System Functions

Up to this point, we have been concerned with the processes that provide the Canadian Forces with skilled tradesmen. What happens when they become trade qualified? This is where operational training and trades training blend together. For example, trade qualified personnel undergo training that gives them practice in functioning as a member of a team. This may include peacekeeping duties, working on rescue missions or in the daily functioning of a Section.

The Systems Approach to training was adopted in 1967. It has had quite an effect on the manner in which we document our training. Before looking at this aspect of training, it is interesting to note that each of the three Operational Commands is responsible for carrying out the training for those trades that are exclusive to that Command. For example, Mobile Command is responsible for the training in such trades as Infantryman, Maritime Command looks after training for trades such as Sonarman, and Air Command looks after training in trades such as Air Defence Technician. When trades are common to more than one Command, such as Cook or Medical Assistant, then the training for these trades is conducted by the schools that are part of the Canadian Forces Training System Headquarters. Each Command is required to follow the processes of the Individual Training System. In this way we have a standard and systematic approach to training throughout the Forces.

#### Documentation of the CFITS

You will now be presented a series of questions and answers on the publications used in the CFITS. This will help you to identify the various documents and also tell you a bit about their contents.

The first process is called Job Analysis. Who is responsible for doing it?

National Defence Headquarters.

The results of Job Analysis, the listing of the duties and tasks that make up the trade, are published as Trade Specifications. Each trade has a code assigned to it. How is this coding system used?

For example, the Airframe Technician has a code of 512. Other trades will have a similar, but unique, number assigned to them. All trades, with their respective codes, are published in a series known as the Manual of Other Ranks Trade Structure. This series of publications, there are 11 volumes, is known as the CFP 123(2) Series. You will find a description of every trade in the Forces in this Manual. Since there are over 100 trades in the Forces, you can see why a series is needed. In Part Six of the series you will find those trades that are coded from 511 to 599. Similarly, in Part One you will find those trades that are coded from 011 to 099.

What else is included in a Trade Specification?

Each specification starts off with an explanation of the scope of the trade. It includes the general functions of the trade such as the equipment that the tradesman is required to operate or maintain, and a description of administrative and other duties. It also gives the requirements for trade progression, if applicable, and will state the security clearance, medical standard, and any prior qualifications for entry into the trade.

What about the listing of tasks and duties?

These are listed in the following manner: Across the top of the page there are three categories, and each category has four levels of competency. The first category is Task Involvement. Under this, the degree of involvement is coded, using capital letters. The same system is used under the Knowledge category, only small letters are used. For the third category, Skill, numbers are used. For each task or duty listed on that particular page, you will see a code that tells you what the level of competency is required in each of the three categories. This applies for each trade qualification level. The main point is, that for any task, at a given Trade Qualification Level, you can identify the levels of Task Involvement, Knowledge, and Skill required.

What are Trade Specialty Specifications?

A Trade Specialty Specification, or TSS, is composed of additional skills and knowledge required to perform a job that is not common to all members of the trade, and which would be too expensive to train everyone in the trade. For example, an Airframe Tech who works on the Hercules aircraft would not require training on all the different types of aircraft we have in the Forces. Also, a TSS that is unique to one trade has a numerical code. A TSS applicable only to the Airframe trade

would be coded 512.01, 512.02, and so on. When a trade specialty is applicable to more than one trade, it is given a letter code, such as AA or PQ. Trade Specialty Specifications are published in a series known as CFP 123(4).

How are trade specifications used for training?

They serve as guides for the Design process. The Command that is responsible for the training in a particular trade will set up a writing team to produce a Course Training Standard, also called a CTS, an On-Job Training Standard (also called an OJTS), or possibly both. The training standards that this team produces are based directly on the Trade Specification.

What does a CTS or OJTS look like?

These publications use a numbering system as follows:

CFP 9562-J4. CFP stands for Canadian Forces Publication, the 9 stands for the 9000 series that has been allotted for training publications, the 562 stands for the trade (this number would vary, depending on the trade), the J stands for On-Job training and the 4 means that it concerns Trade Qualification level 4. A "C" would be used instead of the "J" if the publication represented a course. The number after this would vary, depending on the trade qualification level. By the way, for trade specialty courses that are common to more than one trade, you will see CFP 9004 followed by the code in letters. For example, CFP 9004-JE is the ISS for Instructional Supervisor.

Is there a certain way that these tasks and duties are written up in the CTSs and OJTSs?

Yes. The tasks of the trade specifications are written up as Performance Objectives. A Performance Objective has three parts: a performance statement, the conditions under which the trainee will have to perform when he is evaluated, and the Standard that tells us how well he must do what is stated in the performance statement. Here is an example. One of the tasks of the infantryman is "Fire the Medium Anti-Armour Weapon." This task is written up in a Course Training Standard or an On-Job Training Standard in the form of a performance objective as follows:

1. Performance: Fire the Medium Anti-Armour Weapon
2. Conditions:
  - a) given:
    - (1) gun, 84mm, infantry anti-tank,
    - (2) range facilities and equipment as detailed in range standing orders, and
    - (3) ammunition -
      - (a) 32 rds of 6.5mm gallery per trainee, and
      - (b) 16 rds of 6.5mm tracer per trainee, and
  - b) supervision for safety purposes.



3. Standard: The trainee will fire the practices in accordance with CFP 317(6), Chap 6, para 601, and Table 6-1.

As you can see, the performance objective states precisely what the trainee is to do, the conditions under which he will do it, and the standard of how well it must be done, once he has completed training.

These training standards tell us how well the tradesman must be able to perform after he completes training. The On-Job Standards are sent to the Operational Units where the person will receive training on the job. The Course Training Standards are sent to the school that is to conduct the training.

Does the CTS state the various things that have to be taught in order to get the person trained to the stated level?

No. Here is how that comes about. Upon receipt of the CTS, the Commandant of the school will get together a group of his instructors and School Standards Personnel and they will prepare a Course Training Plan. It is their job to identify the enabling skills and knowledge that will need to be taught to the trainees on course. These are written up using the same three part format that is used for performance objectives.

Some of the enabling skills and knowledge for firing the Medium Anti-Armour Weapon (from the previous example of a performance objective) would be:

- aiming
- loading
- bore sighting
- misfire drill

Does the Course Training Plan that is used by the instructors have a CTP number as well?

A course training plan is used only at the school and is not given a number. Some of the other things in a CTP that are of interest to an instructor are:

- recommended teaching methods for each enabling objective
- recommended training aids and,
- the time allotted for teaching each enabling objective.

The fourth process is concerned with evaluation. During the course the trainees are evaluated when they complete each enabling objective, normally. Then they are evaluated at the end of the course by means of performance checks. Is there anything else to the evaluation process?

Not from the student's point of view. However, the School's Standards Personnel use the results obtained from the performance checks to determine which areas of the course need improving. They might find that the recommended teaching method or the training aids used could be improved. The only documentation that is maintained in the evaluation process consists of the records of trainee's progress, and whatever records the School Standards Company maintains.

This brings us to the final process, Validation. How is it carried out?

The Command that is responsible for the school will normally conduct validation by means of a questionnaire. Questionnaires consist of a rating scale for each of the performance objectives taught on course. This questionnaire is normally filled out by the supervisor of the graduate. After the data has been collected, it is analyzed at the Command. It will notify the school of any problem areas. Validation is not conducted for every course that is run, but is carried out on a periodic basis.

Is the questionnaire the only means of conducting validation?

The On-Site interview is also used. However, it is more costly and time consuming, and is usually only done when the questionnaire is not considered appropriate.

#### Summary

This paper has discussed the five processes of the Canadian Forces Individual Training System. Also presented were the various specifications and publications that are used to control the training processes, and the organizations that are responsible for them.

You might also be interested to know that these processes also apply to Officer training. However, Officer Specifications are published in a CFP 150 series, and the training documents that describe the courses (CTS's) are published in the CFP 8000 Series.

When you want to know some information about the tasks and duties of a particular trade you can look it up in the CFP 123(2) Series, Trade Specifications, or in CFP 123(4), Trade Specialty Specifications.

When you want to know something about the Training System's processes, or training programs, you can find out by referring to the CFP 9000 Series. These publications are normally available to you through the Base Individual Training Office. If in doubt about any aspect of your trade, simply check it out in the appropriate publication.

APPENDIX C

Appendix C: Instructions for the Administration of the Study

Notes to the Co-ordinator for Experiment 1

1. The following is required for the administration of the project on day one (Tuesday):

- a. VTR playback equipment in Syndicates 3 and 4 (Groups A and B of the study); and
- b. issue the materials to the instructors of the various syndicates as follows:

- the comprehension test to Syndicate 1 (Group D)
- the printed text on the CFITS, the Study Unit, the comprehension test and the questionnaire to Syndicate 2 (Group C)
- the videotape on the DFITS, the comprehension test and questionnaire to Syndicate 3 (Group A)
- the videotape on the CFITS, the Study Unit, comprehension test, and questionnaire to Syndicate 4 (Group B)

2. After the above administration has been done for day one, the following is required prior to the administration of the pilot study to Syndicate 1 in week two (Thursday):

- replace all answer sheets in the test booklets with blank answer sheets
- check the test booklets to be used with this group and ensure there are no stray marks or writing in them

3. Once the study has been completed, package and return all materials to me. Thank you for your help.

Notes to the Administrator for Syndicate 3 (Group A)

1. Before the students arrive in the classroom, set the videotape for playback, commencing after the sound tone that has been recorded.
2. Syndicate 3 (Group A) is to view the videotape and complete the comprehension test and questionnaire. There is no time limit to complete the materials. The students may leave the room as they individually complete the project. It is suggested that you give them a short break after the last student has finished.
3. Read the following to your students before showing the videotape.

There are many ways to organize training programs and lessons. However, for every technique or method that is used, it must first be tried out to see if it is effective. Your help is requested in assessing one of these methods. Syndicate 3 has been chosen to do the following:

- watch the videotape program
- complete the test and questionnaire

When you do the test, please circle Group A on the answer sheet.

The training program that you will see has been prepared by Captain Madsen. He is presently completing a program in Educational Technology at Concordia University, in Montreal. Your answers to the test and questionnaire will only be used to assess the effectiveness of the training method used in developing the program. Your answers to the questions will have no effect on your final grade in this course. Your test results will be combined with the test results of the students in each group. It is only

the results of the total group that will be used in assessing this training method.

Your opinion is asked for in the questionnaire. The results of the questionnaires will be treated confidentially and will only be used to assess how you feel, as a group, toward this training method.

The objective, or intention, of the videotape program is as follows. Each process of the Canadian Forces Individual Training System plays an important part in how the system functions. How we determine our training needs, how we set up our programs, how we evaluate them, are all part of the system. If training is to be done smoothly, it is necessary to have documents that are properly prepared and kept up to date. Also, someone has to be responsible for it. After viewing this videotape, you should be able to state what these processes are, the documents used in each, and the organizations that are responsible for them.

4. Show the videotape and have the students do the project. Collect all materials when the students have finished and turn these over to the administrator for the project.
5. Please note any unusual circumstances should they occur during the administration of this project. Pass them to the project co-ordinator.

Thank you for your help.

Notes to the Administrator for Syndicate 4 (Group B)

1. Before the students arrive in the classroom, set the videotape for playback, commencing after the sound tone that has been recorded.
2. Syndicate 4 (Group B) is to view the videotape and complete the Study Unit, comprehension test and questionnaire. There is no time limit to complete the materials. They may leave the room as they individually complete the project. It is suggested that you give them a short break after the last student has finished.
3. After showing the videotape, direct Group B to complete the Study Unit first, and then complete the test and questionnaire.
4. Read the following to your students before showing the videotape.

There are many ways to organize training programs and lessons. However, for every technique or method that is used, it must first be tried out to see if it is effective. Your help is requested in assessing one of these methods. Syndicate 4 has been chosen to do the following:

- watch the videotape program
- complete the Study Unit
- complete the test and questionnaire

When you do the test, please circle Group B on the answer sheet.

The training program that you will see has been prepared by Captain Madsen. He is presently completing a program in Educational Technology at Concordia University, in Montreal. Your answers to the test and questionnaire will only be used to assess the effectiveness of the training method used in developing the

program. Your answers to the questions will have no effect on your final grade in this course. Your test results will be combined with the test results of the students in each group. It is only the results of the total group that will be used in assessing this training method.

Your opinion is asked for in the questionnaire. The results of the questionnaire will be treated confidentially and will only be used to assess how you feel, as a group, toward this training method.

The objective, or intention, of the videotape program is as follows. Each process of the Canadian Forces Individual Training System plays an important part in how the system functions. How we determine our training needs, how we set up our programs, how we evaluate them, are all part of the system. If training is to be done smoothly, it is necessary to have documents that are properly prepared and kept up to date. Also, someone has to be responsible for it. After viewing the videotape and completing the Study Unit, you should be able to state what these processes are, the documents used in each, and the organizations that are responsible for them.

5. Show the videotape and have the students do the project, starting with the Study Unit. Collect all materials when the students have finished and turn them over to the project coordinator.
6. Please note any unusual circumstances should they occur during the administration of this project. Pass them to the project co-ordinator.

Thank you for your help.



Notes to the Administrator for Syndicate 2 (Group C)

1. Syndicate 2 (Group C) is to read the printed text on the Canadian Forces Individual Training System and complete the Study Unit, comprehension test and questionnaire. There is no time limit to complete the materials. The students may leave the room as they individually complete the project. It is suggested that you give them a short break after the last student has finished.

2. Read the following to your students before telling them to read the text and complete the remainder of the study.

There are many ways to organize training programs and lessons. However, for every technique or method that is used, it must first be tried out to see if it is effective. Your help is requested in assessing one of these methods. Syndicate 2 has been chosen to do the following:

- read the text on the CFITS
- complete the Study Unit
- complete the test and questionnaire

When you do the test, please circle Group C on the answer sheet.

The training program has been prepared by Captain Madsen. He is presently completing a program in Educational Technology at Concordia University, in Montreal. Your answers to the test and questionnaire will only be used to assess the effectiveness of the training method used in developing the program. Your answers to the questions will have no effect on your final grade in this course. Your test results will be combined with the test results

of the students in each group. It is only the results of the total group that will be used in assessing this training method.

Your opinion is asked for in the questionnaire. The results of the questionnaire will be treated confidentially and will only be used to assess how you feel, as a group, toward this training method.

The objective, or intention, of the videotape program is as follows. Each process of the Canadian Forces Individual Training System plays an important part in how the system functions. How we determine our training needs, how we set up our programs, how we evaluate them, are all part of the system. If training is to be done smoothly, it is necessary to have documents that are properly prepared and kept up to date. Also, someone has to be responsible for it. After viewing the videotape and completing the Study Unit, you should be able to state what these processes are, the documents used in each, and the organizations that are responsible for them.

3. Show the videotape and have the students do the project, starting with the Study Unit. Collect all materials when the students have finished and turn them over to the project coordinator.
4. Please note any unusual circumstances should they occur during the administration of this project. Pass them to the project co-ordinator.

Thank you for your help.

Notes to the Administrator for Syndicate 1 (Group D)

1. Syndicate 1 (Group D) has been selected to complete the comprehension test on the CFITS. There is no time limit for its completion. The students may individually leave the room as they complete the test. It is suggested that you give them a short break after the last student has finished.

2. Read the following to Group D before beginning the test.

There are many ways to organize training programs and lessons. However, for every technique or method that is used, it must first be tried out to see if it is effective. Syndicate 1 has been chosen to complete the comprehension test on the Canadian Forces Individual Training System. You are asked to answer the questions based on what you already know about the CFITS. When you do the test, please circle Group D on the answer sheet.

The project that you are participating in has been prepared by Captain Madsen. He is presently completing a program in Educational Technology at Concordia University, in Montreal. Your answers to the test will be used to assess the effectiveness of this test as part of the training program. Your answers to the questions will have no effect on your final grade in this course. Your test results will be combined with the results of the total group. It is only the results of the total group that will be used in assessing this test.

3. Please note any unusual circumstances should they occur during the administration of this program. Pass them and the materials used in the project to the project co-ordinator once the students have finished.

4. On Thursday of week two you will be asked by the project coordinator to again administer the comprehension test to your students. He will provide you with the materials at that time. For the second administration, advise the students of the following:

On day one of this course, you participated in a study being conducted by Captain Madsen. You are now asked to complete that study. Once again, you are asked to complete a comprehension test on the Canadian Forces Individual Training System. Answer the questions to the best of your ability, based on what you know about the CFITS. When you have finished, turn in your materials to me. Thank you for helping in this project.

5. Once again, please note any unusual circumstances should they occur during the administration of the test. Please pass them and the testing materials to the project co-ordinator once the students have finished. Thank you for your help.

Notes to the Administrator for Experiment 2

1. You will need videoape playback equipment to administer this project. Make sure you have this set up in your classroom before the students arrive on course. You will also need the videotape on the CFITS, the Study Unit, the comprehension test and the questionnaire.
2. Once you have completed the nominal roll for the students on course, number the students consecutively starting with number 1. Next, put these numbers on individual pieces of paper, fold them and put them in a hat. Draw out one number at a time and alternatively assign them to Group A and to Group B. When you have finished, you should have the class divided into two groups.
3. Ask your fellow instructor to take the students that were assigned to Group A and go to another room. Have him read the following to the students and then have them complete the comprehension test.

You have been selected to participate in a training program that has been prepared by Captain Madsen. He was previously an instructor at this school. He is now attending Concordia University in Montreal, and is working on a post graduate degree in Educational Technology. He has asked that you help with a training program that he has prepared by completing a comprehension test on the CFITS. In this way, you will help determine the suitability of the test used in the program. Your answers to the test will only be used as part of the results of the total group.

4. You should set up the videotape for playback starting after the sound tone that has been recorded. When you are ready to start, read the following to Group B:

The training program that you will see has been prepared by Captain Madsen, a former member of this school. He is presently completing a program in Educational Technology at Concordia University in Montreal. You will be shown a videotape presentation and then asked to complete the following:

- a Study Unit on the CFITS
- a comprehension test and a questionnaire.

Your answers to the test and questionnaire will only be used to assess the effectiveness of the training method used for developing this program. Your test results will be combined with those of the other students in this group. Only the results of the total group will be used in assessing this training method.

Your opinion is asked for in the questionnaire. The results of the questionnaire will be treated confidentially and will only be used to assess how you feel, as a group, toward this training method.

The objective, or intention, of the videotape program is as follows. Each process of the Canadian Forces Individual Training System plays an important part in how the system functions. How we determine our training needs, how we set up our programs, how we evaluate them, are all part of the system. If training is to be done smoothly, it is necessary to have documents that are properly prepared and kept up to date. Also, someone has to be responsible for it. After viewing this videotape and completing the Study Unit, you should be able to state what these processes are, the documents used in each, and the organizations that are responsible for them.

5. Show the videotape and have the students complete the training materials, test and questionnaire. Please note any unusual circumstances should they occur during the administration of this project. Pass them and the training materials to the project co-ordinator for Experiment 1 when finished. Thank you for your help.

APPENDIX D



## Appendix D: The Study Unit on the CFITS

### General Instructions

This training package has been prepared to assess the effectiveness of the structural communication method as a training method for use in the Canadian Forces. It consists of six parts: a statement of the "Intention" of the training materials, a videotape or printed text "Presentation" on the topic of the CFITS, a set of "Problems" based on the presentation, a "Matrix Table" of possible answers to the problems, a "Discussion Section" that will help you determine how well you answered the questions, and a "Viewpoints Section" that will discuss additional aspects on the CFITS.

#### Intention

The purpose of this presentation is to explain what the processes of the CFITS are, how they are carried out, the documents that are used in each, and the organizations that are responsible for ensuring they are performed properly.

#### Presentation

This consists of the videotape on the CFITS. You simply put it on the videotape playback machine and watch the program. Do it now. Once you have completed the presentation, go on and complete the remaining parts of the study unit.

Instructions for Using the Rest of The Study Unit

1. Turn to page 4 and look at the Response Indicator. Notice that it lists the main points that were presented in the videotape or text. Each of these points, or items, has a number assigned to it. You may use these numbers when answering the questions on page 5.

2. On page 5 there are four questions. Answer each question using the following procedure:

a. Read the first question and then study the Response Indicator. Select those items that you feel apply in answering the question. Write the numbers of these items in the space provided under the question.

b. Now turn to the DISCUSSION SECTION on page 6. You will notice that for each question there are four different sets of instructions, enclosed in boxes. Read the first set of instructions and, if it applies to your selection of items, read the explanation provided. Then go on to the next set of instructions. Repeat this process until you have compared your selections against the four sets of instructions provided.

c. Once you have completed the DISCUSSION SECTION for the first question, return to page 5 and complete the remaining questions in the same way.

3. When you have completed the Study Unit, set it aside. You may then go on and complete the Comprehension Test and the Questionnaire. Please do not refer back to the Study Unit when you do the Comprehension Test.

4. Turn to page 4 and begin.

RESPONSE INDICATOR

1. JOB ANALYSIS	2. VALIDATION	3. CFP 123 (4) SERIES	4. TRAINING DESIGN
5. NATIONAL DEFENCE HEADQUARTERS	6. CFP 123 (2) SERIES	7. COMMAND HEADQUARTERS	8. THE SCHOOL
9. CONDUCT OF TRAINING	10. OPERATIONAL UNIT	11. EVALUATION	12. CFP 9512-J5
13. COURSE TRAINING PLAN	14. ON-SITE INTERVIEWS & QUESTIONNAIRES	15. CFP 9512.01 AND CFP 9000 (4) TA	16. TRAINING AIDS AND TEACHING STRATEGIES
17. PERFORMANCE OBJECTIVES	18. ENABLING CHECKS	19. ENABLING OBJECTIVES	20. PERFORMANCE CHECKS

INVESTIGATION SECTION

Question One

The Canadian Forces has just made a purchase of new, major equipment (such as the M-47 tank, the F-16 aircraft, or a new class of destroyers!) Using the Response Indicator on page four, list those items that would apply in determining whether there are any new tasks or duties for any of the trades that might be affected.

---

Question Two

It has been determined that there have been some new duties and tasks in certain trades (as a result of Question One). List those items that would apply in specifying the new training requirements for these trades.

---

Question Three

For this question you are to assume that you are an Airframe Technician (code 512) and that you have been selected for instructional duties at a school on a full-time basis. You have been at your job for only a few days and you are ready to find out what you will be instructing and how you will go about it. You will be instructing Trade Qualification Level 5 personnel. Select those items from the Response Indicator that apply to you in your job as an instructor.

---

Question Four

Further to question three above, you have been instructing for 10 months and you feel that things have been going quite well for you. In this time you have taught two groups of students and did not have any failures. You wonder, however, if the graduates from your courses are doing as well on the job as they did on your course. List those items from the Response Indicator that apply in determining if a tradesman can do the job he was trained to do as a result of the course he attended.

---

DISCUSSION SECTION

Question One

If you have included items 17 or 20, read below

You have remembered that the Systems Approach to Training requires that the training requirements are to be stated in the form of Performance Objectives. However, training requirements can only be defined and stated after the duties and tasks of the trade have been determined. The writing of performance objectives and performance checks would therefore come at a later time.

Reconsider your selection in light of these comments.

If you have omitted items 1 or 5, read below.

You need to reconsider some of the main causes that bring about changes in trade requirements.

Decisions to purchase major items of new equipment are made at National Defence Headquarters (NDHQ). Not only is NDHQ concerned with getting the contract concerning the purchase of the equipment, but it is also concerned with what happens to our personnel once we get the equipment. A contract for the purchase of new equipment will frequently contain provisions for training of our personnel. Once we get some of our personnel trained, we can then set up our own courses for this. Before we can set up any courses we would therefore have to know what the duties and tasks are in those trades that are affected by the purchase of the equipment. This is done by personnel at NDHQ and is known as job analysis.

Reconsider your answer in light of these comments.

If you have omitted items 3 or 6, read below

You did not recall the main control documents that are used to describe what a tradesman does in his job.

The listing of the tasks and duties for each trade are contained in the CF Manual of Military Occupations CFP 123(2). The tasks and duties of trade specialties are contained in CFP 123(4). These tasks and duties are described for each trade qualification level, in the following three categories:

- a. level of task involvement;
- b. level of knowledge required; and
- c. the level of skill required.

It is this information that is particularly useful in the subsequent processes of the CFITS for determining how much training is needed for the different trade levels:

Revise your selection in light of these comments.

If you have included 1, 3, 5, and 6, read below

You have a good understanding of what happens in the first process of the CFITS. When changes occur in the requirements of the trade, then this will produce changes in the training requirements. Once we have determined what these are, we can then set up an effective training program. When NDHQ draws up the contract for the purchase of new, major equipment, it will normally include provisions for training our personnel. Once we get a "skeleton" group trained, we are then in a position to set up our own courses. It is therefore important that any changes in the job requirements of the trades affected are identified and written into the trade specifications. Here is a summary of the first process of the CFITS:

PROCESS - Job Analysis

RESPONSIBLE ORGANIZATION - NDHQ

DOCUMENTS - CFP 123(2) and CFP 123(4)

END OF QUESTION ONE. RETURN TO PAGE 5 AND DO QUESTION TWO.

\*\*\*\*\*

Question Two

If you have included items 8, 9 or 13, read below

You have selected items that describe what is done in the actual training of students to meet the training requirements. But it is only possible to effectively train people after the training requirements have been stated. You still have to identify those items that are responsible for stating these requirements.

Reconsider your selection in light of these comments.

If you have omitted items 4, 17, or 20, read below

You have not recognized the major features that are part of the process that changes the description of what a tradesman is required to do on the job into a description of the training requirements.

Translating job requirements into training requirements requires that certain documents be produced that will contain this information. These documents describe what the student must be able to do as a result of the training he will receive, whether it is by means of a course or On-the-Job training. These requirements are written up as performance objectives. It is also important when stating these training requirements that the checks (tests) that will be used to assess the students' progress are also produced.

Reconsider your selections in light of these comments.

If you have omitted items 7, 12, or 15, read below

You have not recognized the organization responsible for this process, nor have you identified the documents that describe the training requirements.

When changes occur in the tasks and duties that a tradesman does on the job, these changes are reflected in the trade specifications as well. As you are also aware, the Operational Commands are assigned various roles. The Commands are also made responsible for the support activities needed to fulfill these roles. One of these support activities concerns the training of tradesmen whose duties are unique or exclusive to the Command. (In those trades where the duties are common to more than one Command the training is conducted by the schools of the Canadian Forces Training System Headquarters). It is therefore personnel at the Command level who examine the trade specifications and define the tasks and duties in terms of training requirements. In deciding how training can be done effectively and efficiently, decisions are made as to which tasks and duties are to be trained on formal courses and which are best taught On-the-Job. The documents that contain a description of the course training requirements are called Course Training Standards (CTS's) and those that contain a description of On-the-Job training requirements are called On-the-Job Training Standards (OJTS's)

Examine your selections again in light of these comments.



If you selected items 4, 7, 12, 15, and 20, read below

You have successfully identified those items that are involved in transforming job requirements into training requirements. The process of Training Design involves defining what the training requirements are, and whether they are to be realized On-the-Job or by formal courses. To ensure that these requirements are clearly expressed, they are written up in the form of performance objectives. And, performance checks are also produced to help the instructor or the supervisor when assessing the trainee. These normally include any procedures to follow and those things that the trainee should be assessed on. Here is a summary of the second process of the CFITS:

PROCESS - Training Design

RESPONSIBLE ORGANIZATION - Command Headquarters

DOCUMENTS - Course Training Standards (CTS's)  
- On-Job Training Standards (OJTS'S)  
Course Training Standards for Specialty  
Qualifications (i.e. CFP 9512.01 or  
CFP 9000(4) TA).

PERFORMANCE OBJECTIVES - the method of writing up  
the training requirements

PERFORMANCE CHECKS - states how to assess the student  
and on what things

END OF QUESTION TWO. RETURN TO PAGE 5 AND DO QUESTION THREE.

\*\*\*\*\*

Question Three

If you have included items 6, 12, or 15, read below

You have selected documents that are used to specify training requirements. However, as an instructor, you are mainly concerned with those activities that will help you to train your students to meet these training requirements. You might find that these documents will be of interest to you, for they were used to develop the document that you are using as your guide in training your students. It is this latter document that you will mainly use to help you plan your lessons. It even has suggestions for you on how to go about giving them!

Reconsider your selections in light of these comments.

If you omitted items 17, 18, 19, or 20, read below

Each of these items represents the "bread and butter" of your course. On the one hand you are concerned with training your students so that they are able to meet the stated training requirements. On the other hand you are concerned with teaching them the enabling skills and knowledge they need to know in order to do the performance objectives. Both the performance objectives and enabling objectives are listed in the Course Training Plan. It contains all those items that state what you have to train your students and also how you will assess them.

Revise your selections in light of these comments.

If you have omitted items 11, 18, or 20, read below

You have selected the main items that tell which methods and techniques will help you in giving your lesson. But have you thought about the effectiveness of your instruction? How do you really know that your students are following your instruction and will therefore be successful at the end of the course? It is your job to assess how they progress on a day-to-day and weekly basis, as well as at the end of the course.

Reconsider your selections in light of these comments.

If you selected items 8, 9, 11, 13, 15, 16, 17, 19, and 20, read below

Quite a challenge, wasn't it? There are many things that happen in the setting up and running of a course. Fortunately, the school Commandant and the School's Standards Company are responsible for setting up and organizing many of the things that are necessary for the running of a course. The document that states how the course is to be conducted is called the Course Training Plan (CTP). In this document you will find listed the following:

- a. Performance Objectives;
- b. Enabling Objectives; and
- c. Suggested training aids and teaching strategies.

You might find the Performance Checks and Enabling Checks in the Course Training Plan. Chances are, however, that they are classified. You will likely only find directions as to where you may obtain them when needed. As you can see, the instructional process includes many things. A good understanding of what it involves will serve you well in the future.

END OF QUESTION THREE. RETURN TO PAGE 5 AND DO QUESTION FOUR.

\*\*\*\*\*  
Question Four

If you have included items 11, 18, or 19, read below

It is quite true that we do assess the student's learning during the course and at the end of the course. This process is called evaluation. Another type of evaluation also takes place at the school, but it mainly concerns the School's Standards Company. This aspect of evaluation has to do with evaluating the training aids as to their effectiveness and also deals with assessing the effectiveness of the teaching strategies and tactics used in conducting the course. For example, if students are having more difficulty with certain areas of the course than others, it is possible to check to see if this difficulty is due to the way it is being taught or if the training aids are inappropriate. If this is the cause, then changes can be made. It is therefore important that both evaluation of trainees and how they are trained are carried out as a responsibility of the school.

Reconsider your selection in light of the above comments.

If you omitted 10 or 14, read below

You need to reconsider some of the ways that are used to gather information about the graduates of our course.

Once the student completes his training on a course, he goes to a unit or base where he starts his job. If you recall the reason that Course Training Standards are produced, you will remember that they contain a description of the training requirements. Once these documents have been produced, they are sent to the school that has been designated to conduct the training. These documents serve as a guide to the school in helping it prepare the plan for the running of the course. The school remains responsible to the Command Headquarters that has delegated these training responsibilities to it. When the students graduate from the course, it is the Command that is primarily concerned as to whether or not the school has done its job in training the students. Now, consider the techniques that the Command will utilize to determine if the graduates can do the jobs that the school has supposedly trained them to do.

Reconsider your selections in light of the above comments.

If you omitted 17, or 20, read below

You have selected the main instruments that are used to gather information from the Operational Units for purposes of validating the training program. (item 14).

However, the questions that will be used in these instruments must be closely related to the purposes of the course. If you recall the way in which the school went about setting up its course, you will remember that it used the Course Training Standards to find out what the training requirements were. It is these training requirements that need to be validated in terms of how well the school is accomplishing them. By using this as the basis for validation, it is possible to assess if the school has an adequate program.

Revise your selections in light of these comments.

If you selected items 2, 7, 10, 14, 17, and 20, read below

You have correctly identified those items that pertain to the validation process. In summary, the command identifies the training requirements for the various trades that it is responsible for. It then assigns the responsibility for training to a school. The Command will check with the Operational Units on a periodic basis to see if they are satisfied with the graduates from the courses run by the school. This checking process involves questionnaires and on-site interviews. They are based on the Course Training Standard that specifies the training requirements. The data that is obtained is analyzed to determine if there are any serious weaknesses in the way that the training is being performed at the school. If there are serious weaknesses, the Command will get together with the school and attempt to correct them. In this way changes to the training program can be brought about that will help ensure that it does in fact do what it is supposed to.

END OF QUESTION FOUR. YOU MAY GO ON TO THE NEXT SECTION ON VIEWPOINTS.

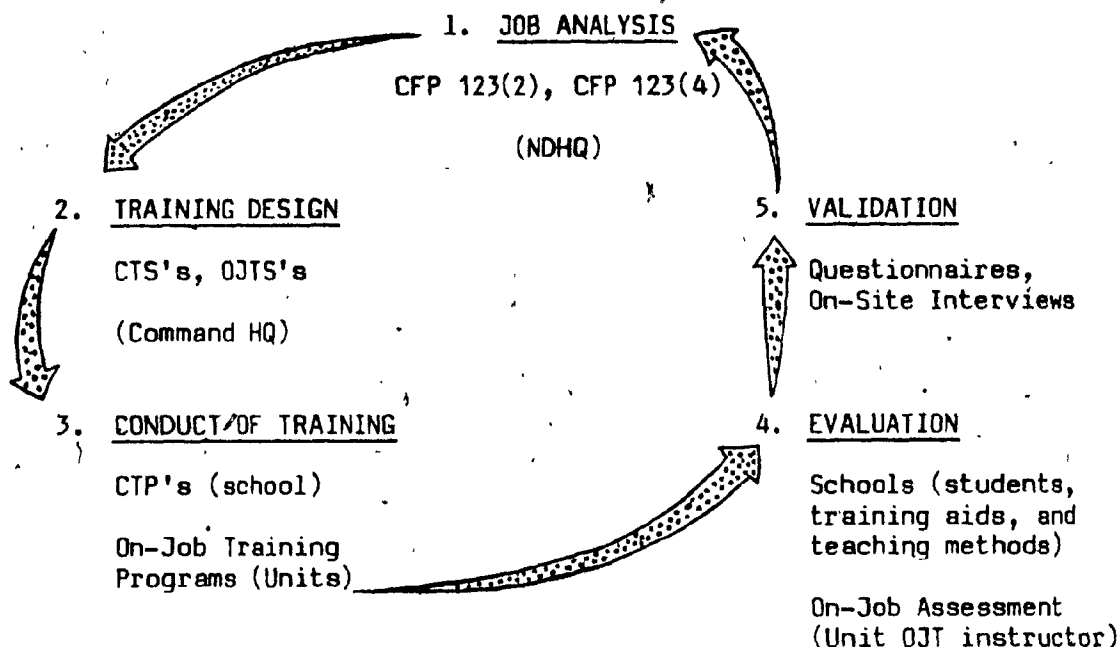
\*\*\*\*\*

VIEWPOINTS

As you can see, the processes of the CFITS are interdependent. Is there a simplified way of showing these relationships? I find the following diagram is quite useful for this. I suggest that you study the diagram, starting with JOB ANALYSIS, and then follow the arrows from one process to the next. Read also the final point on the VALIDATION process below the diagram.

Turn to the next page for this summary.

THE CANADIAN FORCES INDIVIDUAL TRAINING SYSTEM



The processes, documents, and the responsible organizations are intended to keep the training system up-to-date by providing the guidelines and regulations. The success of the training programs in the CFITS is closely linked to the manner in which this is carried out.

VALIDATION is not done for every course. I think you will agree that once a course has been set up and validated, it serves the purpose for which it was intended. Changes in course content would only be brought about by changes in the job requirements of the trade. However, VALIDATION is still carried out periodically.

On-Job training programs involve different circumstances. A problem in training can be dealt with almost as it is seen to occur, since the person is being trained on the job. Personnel undergoing training via OJT are simply not passed by their instructor until he is confident that they can do what they are supposed to be able to do.

THIS COMPLETES THE STUDY UNIT ON THE CFITS. PLEASE TURN TO THE COMPREHENSION TEST AND THE QUESTIONNAIRE AND COMPLETE THEM NOW.

APPENDIX E

Appendix E: Comprehension Test on the CFITS

General Instructions

1. This test is intended to measure how well you have understood the presentation that you have seen on the CFITS.
2. The results of this test will only be used to assess the effectiveness of this program on the CFITS. This test will have no bearing on your final grade for this course.
3. Your test will only be seen and marked by the person who is evaluating the effectiveness of this method of training.
4. Please record your answers on the answer sheet provided.

Instructions for Completing the Answer Sheet

1. Fill in your name.
2. Circle the letter of the group that you belong to.
3. Circle the letter on the answer sheet that corresponds to the answer to the question or statement that you think is correct. You may begin.

ANSWER SHEET

NAME \_\_\_\_\_

GROUP A B C D

1. A B C D

2. A B C D

3. A B C D

4. A B C D

5. A B C D

6. A B C D

7. A B C D

9. A B C D

10. A B C D

11. A B C D

12. A B C D

13. A B C D

14. A B C D

15. A B C D

16. A B C D

17. A B C D

18. A B C D

19. A B C D

20. A B C D



COMPREHENSION TEST ON THE CFITS

1. The process that produces the listing of the duties and tasks for a trade is called:
  - A. training design
  - B. evaluation
  - C. validation
  - D. job analysis
  
2. The process that involves the writing of training objectives is:
  - A. conduct of training
  - B. evaluation
  - C. training design
  - D. job analysis
  
3. Performance checks and enabling checks are part of:
  - A. validation
  - B. conduct of training
  - C. evaluation
  - D. training design
  
4. Questionnaires and on-site interviews are part of:
  - A. training design
  - B. evaluation
  - C. conduct of training
  - D. validation
  
5. When a change is made in the training aids or in the teaching method that concerns a particular enabling objective, this change is likely due to the process of:
  - A. conduct of training
  - B. training design
  - C. job analysis
  - D. evaluation
  
- 6.. Job analysis is the responsibility of:
  - A. Command Headquarters
  - B. National Defence Headquarters
  - C. the Operational Unit
  - D. the School

7. Enabling skills and knowledge are determined by:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. the Course Director
  
8. The process of validation is controlled by:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. the Operational Unit
  
9. The organization responsible for the preparation of Course Training Standards and On-Job Training Standards is:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. the Operational Unit
  
10. Trade Specifications are prepared by:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. the Operational Unit
  
11. The code CFP 9512-J4 describes:
  - A. a trade specification
  - B. a trade specialty specification
  - C. a course training standard
  - D. an on-job training standard
  
12. The document that contains a listing of the duties of the trade of cook will be:
  - A. CFP 9000 series
  - B. CFP 123(2) series
  - C. CFP 9861-J4
  - D. CFP 9861-C3
  
13. The documents that contains both performance objectives and enabling objectives are called:
  - A. Course Training Standards
  - B. Course Training Plans
  - C. Trade Specialty Specifications
  - D. Trade Specifications

14. Course Training Plans are written by:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. Course Training Standards Writing Teams
  
15. A listing of the recommended training aids and suggested teaching strategies would be found in:
  - A. Course Training Plan
  - B. On-Job Training Standard
  - C. Course Training Standard
  - D. the Performance Objective
  
16. The document produced in the first part of the training design process is called:
  - A. CTP
  - B. CTS
  - C. CFP 123(2)
  - D. TSS
  
17. Determining whether or not a person has been adequately trained to do his job at the operational unit is called:
  - A. evaluation
  - B. validation
  - C. training design
  - D. job analysis
  
18. A description of specialized tasks that are not common to the entire trade would be found in:
  - A. CFP 123(2)
  - B. CF 780A
  - C. CFP 9000 series
  - D. CFP 123(4)
  
19. Which item below shows the logical sequence of the processes that make up the CFITS?
  - A. job analysis, conduct of training, evaluation, validation, and training design
  - B. training design, conduct of training, evaluation, validation, and job analysis
  - C. job analysis, training design, conduct of training, evaluation, and validation
  - D. job analysis, training design, conduct of training, validation, and evaluation

20. Which item shows the logical sequence for the development of the documents used in the CFITS?

- A. CFP 123(2), CTS, OJTS, CTP
- B. CFP 123(2), CTS, CTP, OJTS
- C. OJTS, CTS, CFP 123(2), CTP
- D. CFP 123(2), CTP, OJTS, CTS

This completes the comprehension test. Please go on and complete the Questionnaire that follows.

APPENDIX F

Appendix F: Questionnaire on The Videotape Program and Study Unit

General Instructions

By completing this questionnaire you will help us to evaluate this method of presenting instructional materials. The questionnaire is in three parts. You may not be required to complete all three parts. Read the following parts carefully.

Part I (for everyone)

This part asks you to indicate how you feel about the videotape program that you have seen.

Part II (for those who saw the videotape and completed the study unit)

This part asks you some questions on how you feel about using the Study Unit. You are to complete it the same way as you did for Part I.

Part III (for everyone)

This part asks for your opinion on the videotape program and the Study Unit. Each question is in two parts. Please answer only those parts that apply to you. Turn the page and begin.



6. I did not have to concentrate very hard when watching the videotape program.

STRONGLY AGREE      AGREE      UNDECIDED      DISAGREE      STRONGLY DISAGREE

7. I found that seeing the documents that were being discussed helped me to understand the program better.

STRONGLY AGREE      AGREE      UNDECIDED      DISAGREE      STRONGLY DISAGREE

8. The use of questions throughout the program helped to emphasize the main points.

STRONGLY AGREE      AGREE      UNDECIDED      DISAGREE      STRONGLY DISAGREE

Part II (complete this part if you used the Study Unit)

1. I found that the combination of videotape and Study Unit was a good way of presenting the program.

STRONGLY AGREE      AGREE      UNDECIDED      DISAGREE      STRONGLY DISAGREE

2. I did not find the explanations provided were helpful in understanding the videotape program.

STRONGLY AGREE      AGREE      UNDECIDED      DISAGREE      STRONGLY DISAGREE

3. I would like to see this approach tried in other subjects.

STRONGLY AGREE      AGREE      UNDECIDED      DISAGREE      STRONGLY DISAGREE

4. I could have learned as much from the videotape without using the Study Unit.

STRONGLY AGREE      AGREE      UNDECIDED      DISAGREE      STRONGLY DISAGREE

5. I found that I concentrated very hard when doing the Study Unit.

STRONGLY AGREE      AGREE      UNDECIDED      DISAGREE      STRONGLY DISAGREE



Part III (to be completed by everyone)

1. What part of the program did you like the most?

VIDEOTAPE \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

STUDY UNIT \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. What part of the program did you dislike?

VIDEOTAPE \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

STUDY UNIT \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Any more comments that you may wish to add.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This completes the questionnaire. Thank you for participating in this project.

APPENDIX G

Appendix G: Questionnaire on the Printed Text With Study Unit

General Instructions

By completing this questionnaire you will help us to evaluate this method of presenting instructional materials. The questionnaire is in three parts.

Part I

This part asks you to indicate how you feel about the printed material that was prepared on the CFITS.

Part II

This part asks you some questions on how you feel about using the Study Unit. Complete it in the same way that you complete Part I.

Part III

This part asks for your opinion on the printed text and the Study Unit. Turn the page and begin.



6. I did not have to concentrate very hard when reading the text.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
-------------------	-------	-----------	----------	----------------------

7. I found the explanations and examples of the documents given were useful in helping me understand the program better.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
-------------------	-------	-----------	----------	----------------------

8. The use of questions throughout the text helped to emphasize the main points.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
-------------------	-------	-----------	----------	----------------------

Part II (Study Unit)

1. I found that the combination of printed text and Study Unit was a good way of presenting the program.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
-------------------	-------	-----------	----------	----------------------

2. I did not find the explanations provided were helpful in understanding the printed text.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
-------------------	-------	-----------	----------	----------------------

3. I would like to see this approach tried in other subjects.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
-------------------	-------	-----------	----------	----------------------

4. I could have learned as much from the printed text without using the Study Unit.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
-------------------	-------	-----------	----------	----------------------

5. I found that I concentrated very hard when doing the Study Unit.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
-------------------	-------	-----------	----------	----------------------

Part III

1. What part of the program did you like the most?

PRINTED TEXT \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

STUDY UNIT \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. What part of the program did you dislike?

PRINTED TEXT \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

STUDY UNIT \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Any more comments that you may wish to add.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This completes the questionnaire. Thank you for participating in this project.

APPENDIX H

Appendix H: Notes for the User of the Videotape Training Package on  
the Canadian Forces Individual Training System

Intended Audience

This training package has been developed for use in the training of Canadian Forces personnel who have been selected for training and employment within the context of the Canadian Forces Individual Training System (CFITS). It is primarily intended to be used as part of the classroom instructors course and the standards writer's course, but could also be used where a requirement exists to introduce the main aspects of the CFITS to students.

Content of the Training Package

This package contains a 15 minute videotape presentation on the processes, documentation, and organizations that make up the CFITS. The videotape is intended to be used as part of a study unit that further amplifies what is in the videotape presentation. The study unit is in print format and consists of a set of learning exercises that allows the student to investigate, and be challenged on, his understanding of the theme of study, the CFITS.

Intended Application of the Training Package

This training package has been primarily developed for use in a self-paced learning environment, as the various activities to be completed by the student are intended to challenge his individual understanding of the topic presented. Thus there is no fixed way for a particular student to proceed through each question, although one will evolve for each student as he completes the exercises. - It is also possible to use this training package within a group-paced learning



setting. It is possible to provide a group presentation of the videotape and to conduct a guided discussion on the theme presented, once each student completes the training materials of the study unit. It is to be noted, however, that this training package has been developed to ensure that an individual student can investigate the theme of study without the assistance of an instructor.

#### Suggestions for Preparation

A 3/4-inch videocassette playback system is required for showing the videotape. The user should obtain one and set up the videotape on the CFITS prior to reading the directions in the study unit materials. Once this has been done, you complete the activities as detailed in the study unit. You need only show the videotape once prior to commencing the exercises. However, if you have a very limited understanding of what is shown in the videotape, you may view it for a second time before working with the training materials. The intention of the training package is that you learn the objective - if you need more time than someone else, that is considered normal and is not a matter to be concerned about. The important thing is that you increase your understanding of the topic presented as a result of doing the study unit.

#### How to Use the Study Unit

The study unit consists of six parts. As you work through each part you will soon see how they are related to each other and how to use them. The following is only a brief explanation of the purpose of each part.

Intention: this is the learning objective of the package.

Presentation: this is the videotape on the CFITS.

Investigation: consists of questions that you are to answer.

Response Indicator: consists of a summary of the 20 main items in the presentation. You will use these to help you answer the questions.

Discussion: consists of four sets of answers to each question. You will read at least one of these per question to check how well you have answered the question - you may be required to read them all.

Viewpoints: this provides you with a general summary of the program and offers some further thoughts for you on the CFITS.

A final Note to the User

This method of training is new to the Canadian Forces. It has recently been tested for effectiveness and was found to be suitable for Canadian Forces training. This approach is intended to illustrate a different way in which training can be prepared and carried out in the Canadian Forces. The method is called Structural Communication.

An Optional Activity

Once you have completed the study unit, you might wish to try a test that can be used to indicate to you if you have learned the intention of the program. It is attached to this user guide and also has an answer key of the correct answers. Use this guide to correct your test. Should you have any errors, you are encouraged to review the appropriate parts in the Discussion section of the study unit.

COMPREHENSION TEST ON THE CFITS

Instructions:

Circle the letter that corresponds to the answer of the question or statement that you think is correct. Check your answers with those provided at the end of the test when you have finished:

\*\*\*\*\*

1. The process that involves the writing of training objectives is:
  - A. conduct of training
  - B. evaluation
  - C. training design
  - D. job analysis
  
2. Performance checks and enabling checks are part of:
  - A. validation
  - B. conduct of training
  - C. evaluation
  - D. training design
  
3. Questionnaires and on-site interviews are part of:
  - A. training design
  - B. evaluation
  - C. conduct of training
  - D. validation
  
4. When a change is made in the training aids or in the teaching method that concerns a particular enabling objective, this change is likely due to the process of:
  - A. conduct of training
  - B. training design
  - C. job analysis
  - D. evaluation
  
5. Job analysis is the responsibility of:
  - A. Command Headquarters
  - B. National Defence Headquarters
  - C. the Operation Unit
  - D. the School

6. The organization responsible for the preparation of Course Training Standards and On-Job Training Standards is:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. the Operational Unit
7. Course Training Plans are written by:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. Course Training Standards Writing Teams
8. A listing of the recommended training aids and suggested teaching strategies would be found in:
  - A. Course Training Plan
  - B. On-Job Training Standard
  - C. Course Training Standard
  - D. the Performance Objective
9. Determining whether or not a person has been adequately trained to do his job at the operational unit is called:
  - A. evaluation
  - B. validation
  - C. training design
  - D. job analysis
10. A description of specialized tasks that are not common to the entire trade would be found in:
  - A. CFP 123(2)
  - B. CF 780A
  - C. CFP 9800 series
  - D. CFP 123(4)
11. Which item below shows the logical sequence of the processes that make up the CFITS?
  - A. job analysis, conduct of training, evaluation, validation, and training design
  - B. training design, conduct of training, evaluation, validation, and job analysis
  - C. job analysis, training design, conduct of training, evaluation, and validation
  - D. job analysis, training design, conduct of training, validation, and evaluation

12. Which item shows the logical sequence for the development of the documents used in the CFITS?

- A. CFP 123(2), CTS, OJTS, CTP
- B. CFP 123(2), CTS, CTP, OJTS
- C. OJTS, CTS, CFP 123(2), CTP
- D. CFP 123(2), CTP, OJTS, CTS

This completes the comprehension test. Please go on and mark your test using the answer key below.

Answer Key

- |       |        |
|-------|--------|
| 1 = C | 7 = B  |
| 2 = C | 8 = A  |
| 3 = D | 9 = B  |
| 4 = D | 10 = A |
| 5 = B | 11 = C |
| 6 = C | 12 = A |

NOTES FOR THE USER OF THE VIDEOTAPE TRAINING PACKAGE ON

THE CANADIAN FORCES INDIVIDUAL TRAINING SYSTEM

NOTES FOR THE USER OF THE VIDEOTAPE TRAINING PACKAGE ON  
THE CANADIAN FORCES INDIVIDUAL TRAINING SYSTEM

Intended Audience

This training package has been developed for use in the training of Canadian Forces personnel who have been selected for training and employment within the context of the Canadian Forces Individual Training System (CFITS). It is primarily intended to be used as part of the classroom instructors course and the standards writer's course, but could also be used where a requirement exists to introduce the main aspects of the CFITS to students.

Content of the Training Package

This package contains a 15 minute videotape presentation on the processes, documentation, and organizations that make up the CFITS. The videotape is intended to be used as part of a study unit that further amplifies what is in the videotape presentation. The study unit is in print format and consists of a set of learning exercises that allows the student to investigate, and be challenged on, his understanding of the theme of study, the CFITS.

Intended Application of the Training Package

This training package has been primarily developed for use in a self-paced learning environment, as the various activities to be completed by the student are intended to challenge his individual understanding of the topic presented. Thus there is no fixed way for a particular student to proceed through each question, although one will evolve for each student as he completes the exercises. It is also possible to use this training package within a group-paced learning

setting. It is possible to provide a group presentation of the videotape and to conduct a guided discussion on the theme presented, once each student completes the training materials of the study unit. It is to be noted, however, that this training package has been developed to ensure that an individual student can investigate the theme of study without the assistance of an instructor.

#### Suggestions for Preparation

A 3/4-inch videocassette playback system is required for showing the videotape. The user should obtain one and set up the videotape on the CFITS prior to reading the directions in the study unit materials. Once this has been done, you complete the activities as detailed in the study unit. You need only show the videotape once prior to commencing the exercises. However, if you have a very limited understanding of what is shown in the videotape, you may view it for a second time before working with the training materials. The intention of the training package is that you learn the objective - if you need more time than someone else, that is considered normal and is not a matter to be concerned about. The important thing is that you increase your understanding of the topic presented as a result of doing the study unit.

#### How to Use the Study Unit

The study unit consists of six parts. As you work through each part you will soon see how they are related to each other and how to use them. The following is only a brief explanation of the purpose of each part:

Intention: this is the learning objective of the package.

Presentation: this is the videotape on the CFITS.



Investigation: consists of questions that you are to answer.

Response Indicator: consists of a summary of the 20 main items in the presentation. You will use these to help you answer the questions.

Discussion: consists of four sets of answers to each question. You will read at least one of these per question to check how well you have answered the question - you may be required to read them all.

Viewpoints: this provides you with a general summary of the program and offers some further thoughts for you on the CFITS.

#### A final Note to the User

This method of training is new to the Canadian Forces. It has recently been tested for effectiveness and was found to be suitable for Canadian Forces training. This approach is intended to illustrate a different way in which training can be prepared and carried out in the Canadian Forces. The method is called Structural Communication.

#### An Optional Activity

Once you have completed the study unit, you might wish to try a test that can be used to indicate to you if you have learned the intention of the program. It is attached to this user guide and also has an answer key of the correct answers. Use this guide to correct your test. Should you have any errors, you are encouraged to review the appropriate parts in the Discussion section of the study unit.

COMPREHENSION TEST ON THE CFITS

Instructions:

Circle the letter that corresponds to the answer of the question or statement that you think is correct. Check your answers with those provided at the end on the test when you have finished.

\*\*\*\*\*

1. The process that involves the writing of training objectives is:
  - A. conduct of training
  - B. evaluation
  - C. training design
  - D. job analysis
  
2. Performance checks and enabling checks are part of:
  - A. validation
  - B. conduct of training
  - C. evaluation
  - D. training design
  
3. Questionnaires and on-site interviews are part of:
  - A. training design
  - B. evaluation
  - C. conduct of training
  - D. validation
  
4. When a change is made in the training aids or in the teaching method that concerns a particular enabling objective, this change is likely due to the process of:
  - A. conduct of training
  - B. training design
  - C. job analysis
  - D. evaluation
  
5. Job analysis is the responsibility of:
  - A. Command Headquarters
  - B. National Defence Headquarters
  - C. the Operation Unit
  - D. the School

6. The organization responsible for the preparation of Course Training Standards and On-Job Training Standards is:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. the Operational Unit
  
7. Course Training Plans are written by:
  - A. National Defence Headquarters
  - B. the School
  - C. Command Headquarters
  - D. Course Training Standards Writing Teams
  
8. A listing of the recommended training aids and suggested teaching strategies would be found in:
  - A. Course Training Plan
  - B. On-Job Training Standard
  - C. Course Training Standard
  - D. the Performance Objective
  
9. Determining whether or not a person has been adequately trained to do his job at the operational unit is called:
  - A. evaluation
  - B. validation
  - C. training design
  - D. job analysis
  
10. A description of specialized tasks that are not common to the entire trade would be found in:
  - A. CFP 123(2)
  - B. CF 780A
  - C. CFP 9000 series
  - D. CFP 123(4)
  
11. Which item below shows the logical sequence of the processes that make up the CFITS?
  - A. job analysis, conduct of training, evaluation, validation, and training design
  - B. training design, conduct of training, evaluation, validation, and job analysis
  - C. job analysis, training design, conduct of training, evaluation, and validation
  - D. job analysis, training design, conduct of training, validation, and evaluation

12. Which item shows the logical sequence for the development of the documents used in the CFITS?

- A. CFP 123(2), CTS, OJTS, CTP
- B. CFP 123(2), CTS, CTP, OJTS
- C. OJTS, CTS, CFP 123(2), CTP
- D. CFP 123(2), CTP, OJTS, CTS

This completes the comprehension test. Please go on and mark your test using the answer key below.

Answer Key

- |       |        |
|-------|--------|
| 1 = C | 7 = B  |
| 2 = C | 8 = A  |
| 3 = D | 9 = B  |
| 4 = D | 10 = A |
| 5 = B | 11 = C |
| 6 = C | 12 = A |

THE STUDY UNIT ON THE CFITS

## THE STUDY UNIT ON THE CFITS

### General Instructions

This training package has been prepared to assess the effectiveness of the structural communication method as a training method for use in the Canadian Forces. It consists of six parts: a statement of the "Intention" of the training materials, a videotape or printed text "Presentation" on the topic of the CFITS, a set of "Problems" based on the presentation, a "Matrix Table" of possible answers to the problems, a "Discussion Section" that will help you determine how well you answered the questions, and a "Viewpoints Section" that will discuss additional aspects on the CFITS.

#### Intention

The purpose of this presentation is to explain what the processes of the CFITS are, how they are carried out, the documents that are used in each, and the organizations that are responsible for ensuring they are performed properly.

#### Presentation

This consists of the videotape on the CFITS. You simply put it on the videotape playback machine and watch the program. Do it now. Once you have completed the presentation, go on and complete the remaining parts of the study unit.

Instructions for Using the Rest of The Study Unit

1. Turn to page 4 and look at the Response Indicator. Notice that it lists the main points that were presented in the videotape or text. Each of these points, or items, has a number assigned to it. You may use these numbers when answering the questions on page 5.

2. On page 5 there are four questions. Answer each question using the following procedure:

- a. Read the first question and then study the Response Indicator. Select those items that you feel apply in answering the question. Write the numbers of these items in the space provided under the question.
- b. Now turn to the DISCUSSION SECTION on page 6. You will notice that for each question there are four different sets of instructions, enclosed in boxes. Read the first set of instructions and, if it applies to your selection of items, read the explanation provided. Then go on to the next set of instructions. Repeat this process until you have compared your selections against the four sets of instructions provided.

- c. Once you have completed the DISCUSSION SECTION for the first question, return to page 5 and complete the remaining questions in the same way.

3. When you have completed the Study Unit, you may complete the Comprehension Test that is part of the User Guide for this Videotape Training Package. If you choose not to attempt this test, go on to your next lesson.



44-

RESPONSE INDICATOR

1. JOB ANALYSIS	2. VALIDATION	3. CFP 123 (4) SERIES	4. TRAINING DESIGN
5. NATIONAL DEFENCE HEADQUARTERS	6. CFP 123 (2) SERIES	7. COMMAND HEADQUARTERS	8. THE SCHOOL
9. CONDUCT OF TRAINING	10. OPERATIONAL UNIT	11. EVALUATION	12. CFP 9512-J5
13. COURSE TRAINING PLAN	14. ON-SITE INTERVIEWS & QUESTIONNAIRES	15. CFP 9512.01 AND CFP 9000 (4) TA	16. TRAINING AIDS AND TEACHING STRATEGIES
17. PERFORMANCE OBJECTIVES	18. ENABLING CHECKS	19. ENABLING OBJECTIVES	20. PERFORMANCE CHECKS

INVESTIGATION SECTION

Question One

The Canadian Forces has just made a purchase of new, major equipment (such as the M-47 tank, the F-16 aircraft, or a new class of destroyers!) Using the Response Indicator on page four, list those items that would apply in determining whether there are any new tasks or duties for any of the trades that might be affected.

---

Question Two

It has been determined that there have been some new duties and tasks in certain trades (as a result of Question One). List those items that would apply in specifying the new training requirements for these trades.

---

Question Three

For this question you are to assume that you are an Airframe Technician (code 512) and that you have been selected for instructional duties at a school on a full-time basis. You have been at your job for only a few days and you are ready to find out what you will be instructing and how you will go about it. You will be instructing Trade Qualification Level 5 personnel. Select those items from the Response Indicator that apply to you in your job as an instructor.

---

Question Four

Further to question three above, you have been instructing for 10 months and you feel that things have been going quite well for you. In this time you have taught two groups of students and did not have any failures. You wonder, however, if the graduates from your courses are doing as well on the job as they did on your course. List those items from the Response Indicator that apply in determining if a tradesman can do the job he was trained to do as a result of the course he attended.

---

DISCUSSION SECTION

Question One

If you have included items 17 or 20, read below

You have remembered that the Systems Approach to Training requires that the training requirements are to be stated in the form of Performance Objectives. However, training requirements can only be defined and stated after the duties and tasks of the trade have been determined. The writing of performance objectives and performance checks would therefore come at a later time.

Reconsider your selection in light of these comments.

If you have omitted items 1 or 5, read below.

You need to reconsider some of the main causes that bring about changes in trade requirements.

Decisions to purchase major items of new equipment are made at National Defence Headquarters (NDHQ). Not only is NDHQ concerned with getting the contract concerning the purchase of the equipment, but it is also concerned with what happens to our personnel once we get the equipment. A contract for the purchase of new equipment will frequently contain provisions for training of our personnel. Once we get some of our personnel trained, we can then set up our own courses for this. Before we can set up any courses we would therefore have to know what the duties and tasks are in those trades that are affected by the purchase of the equipment. This is done by personnel at NDHQ and is known as job analysis.

Reconsider your answer in light of these comments.

If you have omitted items 3 or 6, read below

You did not recall the main control documents that are used to describe what a tradesman does in his job.

The listing of the tasks and duties for each trade are contained in the CP Manual of Military Occupations CFP 123(2). The tasks and duties of trade specialties are contained in CFP 123(4). These tasks and duties are described for each trade qualification level, in the following three categories:

- a. level of task involvement;
- b. level of knowledge required; and
- c. the level of skill required.

It is this information that is particularly useful in the subsequent processes of the CFITS for determining how much training is needed for the different trade levels.

Revise your selection in light of these comments.

If you have included 1, 3, 5, and 6, read below

You have a good understanding of what happens in the first process of the CFITS. When changes occur in the requirements of the trade, then this will produce changes in the training requirements. Once we have determined what these are, we can then set up an effective training program. When NDHQ draws up the contract for the purchase of new, major equipment, it will normally include provisions for training our personnel. Once we get a "skeleton" group trained, we are then in a position to set up our own courses. It is therefore important that any changes in the job requirements of the trades affected are identified and written into the trade specifications. Here is a summary of the first process of the CFITS:

PROCESS - Job Analysis

RESPONSIBLE ORGANIZATION - NDHQ

DOCUMENTS - CFP 123(2) and CFP 123(4)

END OF QUESTION ONE. RETURN TO PAGE 5 AND DO QUESTION TWO.

\*\*\*\*\*

Question Two

If you have included items 8, 9 or 13, read below

You have selected items that describe what is done in the actual training of students to meet the training requirements. But it is only possible to effectively train people after the training requirements have been stated. You still have to identify those items that are responsible for stating these requirements.

Reconsider your selection in light of these comments.

If you have omitted items 4, 17, or 20, read below

You have not recognized the major features that are part of the process that changes the description of what a tradesman is required to do on the job into a description of the training requirements.

Translating job requirements into training requirements requires that certain documents be produced that will contain this information. These documents describe what the student must be able to do as a result of the training he will receive, whether it is by means of a course or On-the-Job training. These requirements are written up as performance objectives. It is also important when stating these training requirements that the checks (tests) that will be used to assess the students' progress are also produced.

Reconsider your selections in light of these comments.

If you have omitted items 7, 12, or 15, read below

You have not recognized the organization responsible for this process, nor have you identified the documents that describe the training requirements.

When changes occur in the tasks and duties that a tradesman does on the job, these changes are reflected in the trade specifications as well. As you are also aware, the Operational Commands are assigned various roles. The Commands are also made responsible for the support activities needed to fulfill these roles. One of these support activities concerns the training of tradesmen whose duties are unique or exclusive to the Command. (In those trades where the duties are common to more than one Command the training is conducted by the schools of the Canadian Forces Training System Headquarters). It is therefore personnel at the Command level who examine the trade specifications and define the tasks and duties in terms of training requirements. In deciding how training can be done effectively and efficiently, decisions are made as to which tasks and duties are to be trained on formal courses and which are best taught On-the-Job. The documents that contain a description of the course training requirements are called Course Training Standards (CTS's) and those that contain a description of On-the-Job training requirements are called On-Job Training Standards (OJTS's)

Examine your selections again in light of these comments.

If you selected items 4, 7, 12, 15, and 20, read below

You have successfully identified those items that are involved in transforming job requirements into training requirements. The process of Training Design involves defining what the training requirements are, and whether they are to be realized On-the-Job or by formal courses. To ensure that these requirements are clearly expressed, they are written up in the form of performance objectives. And, performance checks are also produced to help the instructor or the supervisor when assessing the trainee. These normally include any procedures to follow and those things that the trainee should be assessed on. Here is a summary of the second process of the CPITS:

PROCESS - Training Design

RESPONSIBLE ORGANIZATION - Command Headquarters

DOCUMENTS - Course Training Standards (CTS's)  
- On-Job Training Standards (OJTS'S)  
Course Training Standards for Specialty Qualifications (i.e. CFP 9512.01 or CFP 9000(4) TA).

PERFORMANCE OBJECTIVES - the method of writing up the training requirements

PERFORMANCE CHECKS - states how to assess the student and on what things

END OF QUESTION TWO. RETURN TO PAGE 5 AND DO QUESTION THREE.

\*\*\*\*\*

Question Three

If you have included items 6, 12, or 15, read below

You have selected documents that are used to specify training requirements. However, as an instructor, you are mainly concerned with those activities that will help you to train your students to meet these training requirements. You might find that these documents will be of interest to you, for they were used to develop the document that you are using as your guide in training your students. It is this latter document that you will mainly use to help you plan your lessons. It even has suggestions for you on how to go about giving them!

Reconsider your selections in light of these comments.

If you omitted items 17, 18, 19, or 20, read below

Each of these items represents the "bread and butter" of your course. On the one hand you are concerned with training your students so that they are able to meet the stated training requirements. On the other hand you are concerned with teaching them the enabling skills and knowledge they need to know in order to do the performance objectives. Both the performance objectives and enabling objectives are listed in the Course Training Plan. It contains all those items that state what you have to train your students and also how you will assess them.

Revise your selections in light of these comments.

If you have omitted items 11, 18, or 20, read below

You have selected the main items that tell which methods and techniques will help you in giving your lesson. But have you thought about the effectiveness of your instruction? How do you really know that your students are following your instruction and will therefore be successful at the end of the course? It is your job to assess how they progress on a day-to-day and weekly basis, as well as at the end of the course.

Reconsider your selections in light of these comments.

If you selected items 8, 9, 11, 13, 15, 16, 17, 19, and 20, read below

Quite a challenge, wasn't it? There are many things that happen in the setting up and running of a course. Fortunately, the school Commandant and the School's Standards Company are responsible for setting up and organizing many of the things that are necessary for the running of a course. The document that states how the course is to be conducted is called the Course Training Plan (CTP). In this document you will find listed the following:

- a. Performance Objectives;
- b. Enabling Objectives; and
- c. Suggested training aids and teaching strategies.

You might find the Performance Checks and Enabling Checks in the Course Training Plan. Chances are, however, that they are classified. You will likely only find directions as to where you may obtain them when needed. As you can see, the instructional process includes many things. A good understanding of what it involves will serve you well in the future.

END OF QUESTION THREE. RETURN TO PAGE 5 AND DO QUESTION FOUR.

\*\*\*\*\*

Question Four

If you have included items 11, 18, or 19, read below

It is quite true that we do assess the student's learning during the course and at the end of the course. This process is called evaluation. Another type of evaluation also takes place at the school, but it mainly concerns the School's Standards Company. This aspect of evaluation has to do with evaluating the training aids as to their effectiveness and also deals with assessing the effectiveness of the teaching strategies and tactics used in conducting the course. For example, if students are having more difficulty with certain areas of the course than others, it is possible to check to see if this difficulty is due to the way it is being taught or if the training aids are inappropriate. If this is the cause, then changes can be made. It is therefore important that both evaluation of trainees and how they are trained, are carried out as a responsibility of the school.

Reconsider your selection in light of the above comments.

If you omitted 10 or 14, read below

You need to reconsider some of the ways that are used to gather information about the graduates of our course.

Once the student completes his training on a course, he goes to a unit or base where he starts his job. If you recall the reason that Course Training Standards are produced, you will remember that they contain a description of the training requirements. Once these documents have been produced, they are sent to the school that has been designated to conduct the training. These documents serve as a guide to the school in helping it prepare the plan for the running of the course. The school remains responsible to the Command Headquarters that has delegated these training responsibilities to it. When the students graduate from the course, it is the Command that is primarily concerned as to whether or not the school has done its job in training the students. Now, consider the techniques that the Command will utilize to determine if the graduates can do the jobs that the school has supposedly trained them to do.

Reconsider your selections in light of the above comments.



If you omitted 17, or 20, read below

You have selected the main instruments that are used to gather information from the Operational Units for purposes of validating the training program. (item 14).

However, the questions that will be used in these instruments must be closely related to the purposes of the course. If you recall the way in which the school went about setting up its course, you will remember that it used the Course Training Standards to find out what the training requirements were. It is these training requirements that need to be validated in terms of how well the school is accomplishing them. By using this as the basis for validation, it is possible to assess if the school has an adequate program.

Revise your selections in light of these comments.

If you selected items 2, 7, 10, 14, 17, and 20, read below

You have correctly identified those items that pertain to the validation process. In summary, the command identifies the training requirements for the various trades that it is responsible for. It then assigns the responsibility for training to a school. The Command will check with the Operational Units on a periodic basis to see if they are satisfied with the graduates from the courses run by the school. This checking process involves questionnaires and on-site interviews. They are based on the Course Training Standard that specifies the training requirements. The data that is obtained is analyzed to determine if there are any serious weaknesses in the way that the training is being performed at the school. If there are serious weaknesses, the Command will get together with the school and attempt to correct them. In this way changes to the training program can be brought about that will help ensure that it does in fact do what it is supposed to.

END OF QUESTION FOUR. YOU MAY GO ON TO THE NEXT SECTION ON VIEWPOINTS.

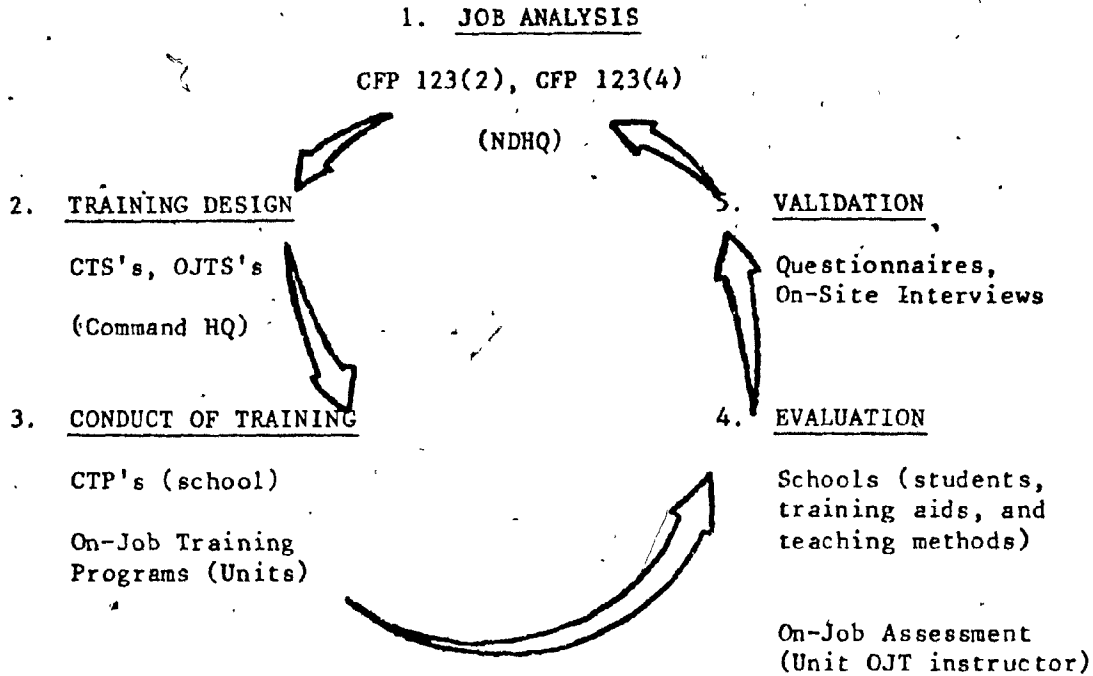
\*\*\*\*\*

VIEWPOINTS

As you can see, the processes of the CFITS are interdependent. Is there a simplified way of showing these relationships? I find the following diagram is quite useful for this. I suggest that you study the diagram, starting with JOB ANALYSIS, and then follow the arrows from one process to the next. Read also the final point on the VALIDATION process below the diagram.

Turn to the next page for this summary.

THE CANADIAN FORCES INDIVIDUAL TRAINING SYSTEM



The processes, documents, and the responsible organizations are intended to keep the training system up-to-date by providing the guidelines and regulations. The success of the training programs in the CFITS is closely linked to the manner in which this is carried out.

VALIDATION is not done for every course. I think you will agree that once a course has been set up and validated, it serves the purpose for which it was intended. Changes in course content would only be brought about by changes in the job requirements of the trade. However, VALIDATION is still carried out periodically.

On-Job training programs involve different circumstances. A problem in training can be dealt with almost as it is seen to occur, since the person is being trained on the job. Personnel undergoing training via OJT are simply not passed by their instructor until he is confident that they can do what they are supposed to be able to do.

This completes the study unit on the CFITS. You may now turn to the comprehension test that is in the user guide. Try it to see how well you can do. If you have any errors, make sure you check them out in the appropriate DISCUSSION SECTION of this study unit. This is an optional activity and you may not want to do the test. If you do not want it, go on to your next lesson.