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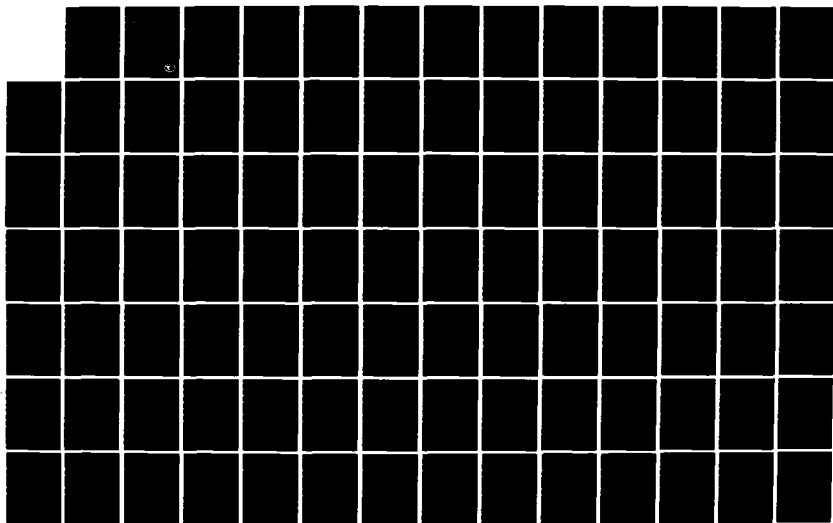
EVALUATION RESULTS FOR THE INTERACTIVE VIDEO COMPETENCY
RECOGNITION SYSTEM(U) ARMY TRAINING DEVELOPMENTS INST
FORT MONROE VA R AVANT ET AL. 30 MAY 83 TDI-TR-83-4

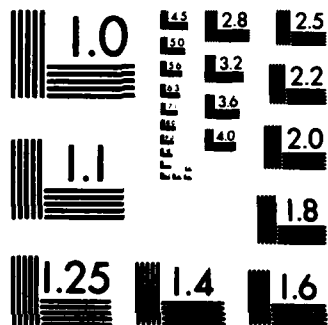
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EVALUATION RESULTS FOR THE
INTERACTIVE VIDEO COMPETENCY
RECOGNITION SYSTEM

FINAL REPORT

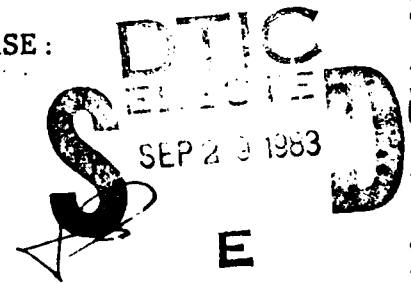
BY: Roy Avant
Carol A. Johnson, Ph.D.
Paul Best, Ph.D.

30 MAY 1983

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US ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651



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This report has been reviewed and is approved.



FRANK E. GIUNTI
Chief, Instructional
Development Division



EDMUND J. GLABUS
Colonel, Infantry
Director, Training Developments
Institute

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Organizational Effectiveness Center and School (OEC&S) at Ft Ord, CA, has been the training center for the Army's Organizational Effectiveness Consultants since 1975. The effectiveness of such consultants appears to be dependent upon "soft skills" interpersonal competencies, rather than specific tasks which are performed. In 1979, OEC&S and the Army Research Institute contracted with McBer & Co. to develop a model of the competencies which distinguish the superior from the average consultant.		

20. ABSTRACT (Continued)

Eighteen of the 33 competencies identified in the McBer model were considered by OEC&S to be potentially trainable in the course. The success of the training requires an understanding of the competencies and an ability, on the part of the trainers, to recognize if and when the competencies are being demonstrated.

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EXECUTIVE SUMMARY

BACKGROUND

The Organizational Effectiveness Center and School (OEC&S) at Fort Ord, California has been the training center for the Army's Organizational Effectiveness Consultants since 1975. The effectiveness of such consultants appears to be dependent upon "soft skill" interpersonal competencies, rather than specific tasks which are performed. In 1979, OEC&S and the Army Research Institute contracted with McBer & Co. to develop a model of the competencies which distinguish the superior from the average consultant. Eighteen of the 33 competencies identified in the McBer model were considered by OEC&S to be potentially trainable in the course. However, the success of the training requires an understanding of the competencies and an ability, on the part of the trainers, to recognize if and when the competencies are being demonstrated.

In order to provide a resource-efficient means of training the trainers to recognize the performance of the competencies by a student, McBer & Co. joined with Interactive Training Systems, Inc., (ITS) to produce the Interactive Video Competency Recognition Training System (IVCRTS). The IVCRTS links videotapes which portray consultants in action with a microcomputer in order to train the trainer to identify specific competencies and to recognize them when portrayed in various situations.

Subsequent to the McBer/ITS initiatives in this area, OEC&S asked the Training Developments Institute (TDI) to participate in and support an effort to assess the value of the IVCRTS in teaching competency recognition.

After investigating the OEC&S request and coordinating with the Army Communicative Technology Office (ACTO), TDI agreed to fund and monitor a formal evaluation of the IVCRTS. In addition to an interest in the competency recognition issue, TDI was also interested in learning if the IVCRTS has potential for application in training other types of skills, particularly if it could be used with a disk system to allow for "real-time" interaction capability.

Due to limitations imposed by the selection of videotapes used in this effort, only 15 of the 18 consulting competencies were coded for recognition purposes.

OBJECTIVE

The objective of this effort was for McFann, Gray & Associates, Inc., (MGA) to evaluate the effectiveness and efficiency of the IVCRTS in training trainers at OEC&S to recognize 15 of the consulting competencies. In addition, the usability and acceptability of the inputting and coding system used by course developers and the individual training management aspects of the IVCRTS were evaluated.

IVCRTS DESCRIPTION

The basic hardware in the system includes an IBM Personal Computer, an ITS 2000 Video Controller, and an Electrohome Hi-Res RGB Video Monitor. Interactions between the IBM computer, the ITS controller and the ITS software enable the user to interact with audio-video presentations originating from a videotape player.

The ITS software is designed to facilitate learning by requiring users to connect a set of terms or concepts with visual images, i.e., by requiring a learner to become skilled at identifying something that is presented in the visual mode.

As used in the OEC&S effort, the software programs were designed to teach trainers to recognize when one of the 15 consulting competencies was being displayed by an actor portraying an Army OE consultant interacting with clients in a military setting. The 15 competencies were coded onto pre-existing videotapes by two members of the OEC&S Training Development Directorate. The tapes were originally produced to explain the OE process to TRADOC service school students. The 15 competencies are:

- | | |
|-------------------------------------|---------------------------------|
| 1. Functional Knowledge | 9. Aware of Self Impact |
| 2. Self Confidence | 10. Seeks Multiple Perspectives |
| 3. Low Fear of Rejection | 11. Causal Thinking |
| 4. Establishes Professional Rapport | 12. Identifies Key Themes |
| 5. Concern for Clarity | 13. Problem Focused Procedures |
| 6. Seeks User Input | 14. Seizes Opportunities |
| 7. Uses Influence Strategies | 15. Results Orientation |
| 8. Communicates Clearly | |

EVALUATION ISSUES AND DESIGN

In general, this effort sought to evaluate the major components of the IVCRTS in terms of: ease of use, flexibility, reliability, effectiveness, efficiency, and user acceptance. The major components of the system are: the Inputting and Coding System, the Training System, and the Training Management System.

The study was conducted from December through March 1983 at the OEC&S in accordance with a test and evaluation plan developed by MGA and approved by OEC&S and TDI.

Twenty trainers from the Training Directorate of OEC&S served as the sample of IVCRTS users. They were expected to use the IVCRTS until they had reached an established training criterion of 70% correct recognition of 70% of the 15 competencies.

Actual performance data were recorded by the IVCRTS. Other data were collected via two survey/questionnaire instruments and structured interviews. The collection methods, sources and numbers/types of persons involved are described below:

COLLECTION METHOD	SOURCE	NUMBER
IVCRTS Program	Trainers	20 (14 in Pairs)
Problem Survey Log	Trainers Course Developers	20 4
IVCRTS Evaluation Questionnaire	Trainers Course Developers	12* 4
Structured Interviews	Trainers Managers Coders	12* 3 2

*A subset of the 20 trainers who used the IVCRTS.

IVCRTS TRAINING SESSIONS

The basic options available to the IVCRTS user are: Introduction to the OE Competency Model; Exercise Play in either a "Name It" mode or a "Find It" mode; Reliability scores; Tutor; and Rundown. The user interacts with the system by using a light pen to touch appropriate portions of the video screen.

Ideally, a user would begin with the Introduction option to learn about the competencies available for display and the behavioral indicators for each. Following this, a user could select one of three available tape segments (Assessment, Planning, or Evaluation) to use in participating in one of two exercise options, "Name It" or "Find It." Seven or eight of the 15 competencies are available for display on each of the three tape segments.

The "Name It" exercise is considered the easier because it provides an audio cue to indicate when a competency is about to be presented and the system stops on

completion of each competency presentation to allow the user an opportunity to name the competency.

The "Find It" exercise is considered more difficult because there is no audio cue to signal presentations, nor does the system automatically stop at the end of a representation in this mode to allow the user to identify the competencies presented. The user in this exercise must stop the system and make an identification.

Given the difference between the two exercises, the users were advised to work through the tapes using the "Name It" exercise mode before attempting the "Find It" exercise.

The Tutor option is available for users who have trouble identifying the competency presentations. It allows users to re-view the tape segments they are having trouble with.

The Reliability Scores option provides users with a cumulative record of performance, and is the feature the users refer to to determine if/when they reach the established criterion.

The Rundown feature was designed to assist users who consistently confuse one or more competencies with others.

The users were told to work on the system until they had at least a 70% reliability score for each exercise option available on each of the three tapes.

Because complete anonymity was desired, user disks were coded to prevent monitoring of individual programs.

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

Summary

The analysis of available data led to the following summary conclusions:

1. The IVCRTS is a highly complex and sophisticated training apparatus that is potentially very useful in the OEC&S environment, especially if combined with other training methods.
2. The IVCRTS Inputting and Coding System requires several weeks of study and hands-on experience to enable coders to use it to its full potential.
3. The IVCRTS Training System, as it was employed in this evaluation effort, did not bring about the training results desired.
4. Factors which contributed most to the training performance obtained were:
 - Limitations inherent in the videotapes used;
 - The nature of the skills being trained;
 - The subjectivity involved in the coding process;
 - Absence of strong motivation of the sample of trainers;
 - Conditions under which the evaluation was conducted; and,
 - Absence of needed data.
5. The IVCRTS Training Management System does not record data in sufficient detail or appropriate format to adequately assess training gains.

Recommendations

1. **Continue Evaluation.** It is recommended that OEC&S continue to evaluate the effectiveness and efficiency of the IVCRTS in the OEC&S setting. The majority of the people who contributed to the evaluation effort appear to think that there is a place for the IVCRTS within OEC&S. Most trainers, it seems, would be interested in using the IVCRTS in combination with one or more of the training methods now employed in the classroom. The training managers are particularly optimistic about the future use of the IVCRTS, particularly in the areas of standardization of instruction and grading. The training developers view the IVCRTS as an excellent resource and are looking forward to expected improvements in the system.
2. **Use Panel of Experts to Code.** The apparent lack of success of the IVCRTS in this case may have resulted more from the nature of the skills being trained (i.e., the McBer competencies) than from the system itself. The consultant-client interaction is a highly complex one that requires the successful consultant to demonstrate a large number of competencies, often simultaneously. Any selected segment of sequential behaviors is so rich with possible combinations that a forced choice of some single and minute part is artificial at best. Add to this the highly subjective nature of the coding process, and the chances of reaching a meaningful level of agreement diminishes significantly.

Nevertheless, agreement could probably be improved upon in this case if more experienced people were involved in the coding process. It is recommended, therefore, that a larger panel of subject matter experts with demonstrated success as both instructors and consultants be involved in the competency coding process.

3. **Relate Competencies to Class Learning Objectives.** Learning objectives for each block of instruction apparently do not incorporate specific competencies or competency based behaviors. If, in fact, an objective of the

Program of Instruction is to train the essential competencies identified in the McBer study, then it seems appropriate that learning objectives incorporate specific competencies as appropriate to each objective.

4. **Evaluate IVCRTS Through Student Use.** Assuming that the competencies support classroom learning objectives and that an expert panel can agree to realistic coding procedures, it seems the IVCRTS has more potential for use as a training mechanism for students in the consultant's course. In addition to assisting in the standardization of instruction and grading, the IVCRTS could be used to compliment the existing methods of instruction. Furthermore, since the students' activities are controlled and monitored closely, it is likely that the effectiveness and efficiency of the IVCRTS could be more accurately assessed with such a group. The students are also more likely to be motivated to use the system to its full potential.
5. **Modify the Individual Training Management System.** With more control over the users of the IVCRTS (i.e., students in the course) and perhaps with additional program software, it should be possible to obtain more and better data to assist in evaluating the effectiveness and efficiency of the system. As a minimum, there needs to be a record of which competencies are presented in each session, in what order, and with what frequency. Additionally, the amount of time devoted to each session should also be recorded. These data should be available for each individual and for groups of individuals.

Also, for maximum effect, students should be required to demonstrate ability on the system individually rather than in pairs.

6. **Locate/Develop Other Videotapes.** Finally, It is recommended that additional videotapes be located and/or developed to allow for both the coding of additional competencies and the coding of the same competencies in different settings or contexts. If possible, the videotapes would be of actual consulting activities and would not contain distracting narrator commentary.

**EVALUATION RESULTS FOR THE
INTERACTIVE VIDEO COMPETENCY
RECOGNITION SYSTEM**

Prepared By:

Roy Avant
Carol A. Johnson, Ph.D.
Paul Best, Ph.D.
McFann, Gray & Associates, Inc.
2100 Garden Road, Suite J
Monterey, California 93940
408-373-1111

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Fort Monroe, Virginia

Conducted At:

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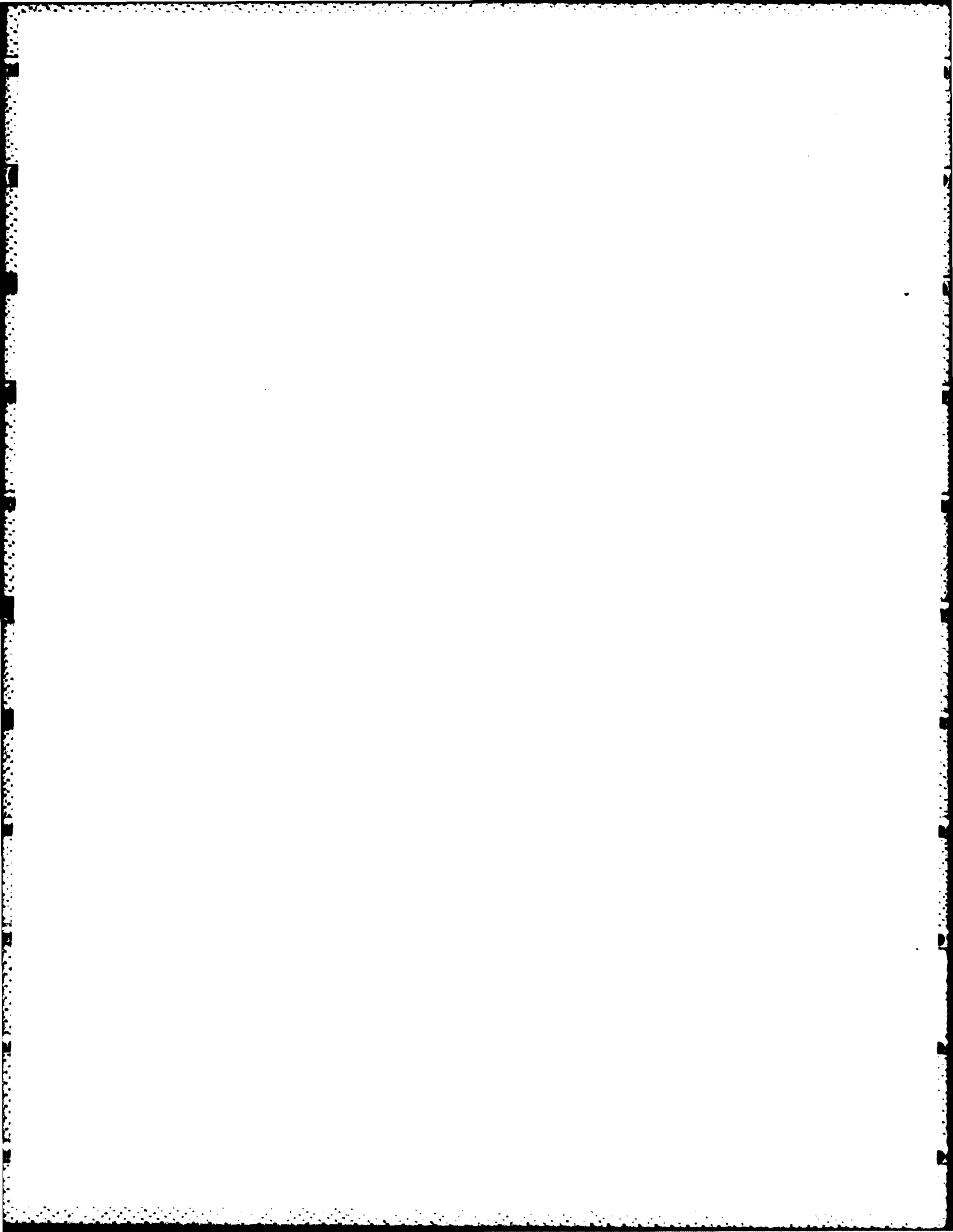


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SECTION I: INTRODUCTION

BACKGROUND

The Organizational Effectiveness Center and School (OEC&S) at Fort Ord, California has been the training center for the Army's Organizational Effectiveness Consultants since 1975. The effectiveness of such consultants appears to be dependent upon "soft skill" interpersonal competencies, rather than specific tasks which are performed. In 1979, OEC&S and the Army Research Institute contracted with McBer & Co. to develop a model of the competencies which distinguish the superior from the average consultant. Eighteen of the 33 competencies identified in the McBer model were considered by OEC&S to be potentially trainable in the course. However, the success of the training requires an understanding of the competencies and an ability, on the part of the trainers, to recognize if and when the competencies are being demonstrated.

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After investigating the OEC&S request and coordinating with the Army Communicative Technology Office (ACTO), TDI agreed to fund and monitor a formal evaluation of the IVCRTS. In addition to an interest in the competency recognition issue, TDI was also interested in learning if the IVCRTS has potential for application in training other types of skills, particularly if it could be used with a disk system to allow for "real-time" interaction capability.

Due to limitations imposed by the selection of videotapes used in this effort, only 15 of the 18 consulting competencies were coded for recognition purposes.

OBJECTIVE

The objective of this effort was for McFann, Gray & Associates, Inc., (MGA) to evaluate the effectiveness and efficiency of the IVCRTS in training trainers at OEC&S to recognize 15 of the consulting competencies. In addition, the usability and acceptability of the inputting and coding system used by course developers and the individual training management aspects of the IVCRTS were evaluated.

THE IVCRTS IMPLEMENTATION

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- | | |
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| 8. Communicates Clearly | |

The ITS software is designed to facilitate learning by requiring users to connect a set of terms or concepts with visual images, i.e., by requiring a learner to become skilled at identifying something that is presented in the visual mode.

The IVCRTS package consists of three major components:

- The Inputting and Coding System. This system was used by course developers (coders) to code 15 competencies onto 3 different videotapes. (The videotapes selected for this purpose did not contain segments suitable for coding the other three competencies considered trainable in the course.) When a competency was being displayed on the videotape, the coder indicated which competency was being displayed, where the segment began and ended, and the strength of the display. The coder used a keyboard to interact with the system.
- The Training System. Once the tapes were coded, they were then used to train the trainers. The trainers used a light pen to interact with the system. They chose from a map of feature options which included:

1. Introduction to the OE Model:

This feature provides, in text form, an explanation of the competency model, definitions for each competency, and behavioral indicators for each competency.

2. "Name It" or "Find It":

This is the principal training feature of the system. Three videotapes are available which portray an OE Consultant interacting with clients during each of three phases of the consulting process - Assessment, Planning, and Evaluation. Each tape is coded to display 7 or 8 of the 15 competencies. The user is required to identify the competencies displayed by participating in a "Name It" exercise or a "Find It" exercise. In the "Name It" exercise, an audio cue indicates that a competency is being displayed. The user then indicates which specific competency is being displayed. In the "Find It" exercise, the user is required to identify the correct competency without benefit from the audio cue.

3. Reliability Scores:

This feature provides the user with a summary of their progress. A histogram of score data is presented for each competency.

4. Tutor:

This feature allows a user to review the competencies presented on each tape. It indicates the number of times each competency is presented, and provides definitions and supporting behavioral indicators of each. It will also replay the videotape segment on which each competency is displayed.

5. Rundowns:

This feature records the instances in which the user consistently confuses one competency with another and provides explanations, to assist in eliminating that confusion.

- The Training Management System. The IVCRTS also includes an individual training management component. Each trainer has their own floppy disk on which their learning is tracked. The computer summarizes a trainer's progress by showing a histogram of their scores. This is computed by dividing the number of successful trials by the number of times they have been exposed to each competency. This can be displayed showing results across practice sessions or by each competency.

SPECIFIC EVALUATION ISSUES

MGA researchers evaluated each of the above components of the IVCRTS separately as the evaluation issues are somewhat different. The evaluation issues are briefly summarized below.

A. Inputting and Coding System

1. Ease of use.

This issue addressed whether the inputting and coding system was understandable to course developers, and whether they learned to use it easily.

2. Program flexibility.

This issue was concerned with whether changes in coding could be made easily and quickly, and whether the program was flexible enough to code sufficient competencies to reflect a real-life situation.

3. Acceptance by course developers.

This issue involves how positively the system was received by course developers.

4. Reliability.

The reliability of the hardware and software was evaluated by amount of downtime, whether the software followed a logical sequence, and whether there were any technical problems with the system.

B. Training System

1. Effectiveness.

This issue addressed the question, "Does the IVCRTS train the trainers to recognize competencies?" OEC&S set a criterion that 70% of the trainers must recognize 70% of the competencies in order for the system to be considered effective. In addition, the extent or degree of improvement was to be assessed, as well as more subjective judgments of effectiveness as measured by questionnaire and interview items.

2. Efficiency.

The efficiency of the training system was viewed primarily in terms of time: "How long does it take for an individual to reach criterion?" And opinions were solicited regarding how this system compares to other potential training methods.

3. User acceptance.

General reactions to the system were obtained. In addition, specific issues such as agreement with the coding and reactions to the game formats were also addressed.

4. Reliability.

As with the inputting and coding system, the amount of downtime, technical problems, and logical problems in the software were used to assess the system's reliability.

C. Training Management System

1. Cost benefit.

The cost benefits of the system were evaluated in terms of time, and the effectiveness with which the system can adequately assess an individual's skill level at competency recognition were assessed.

2. Effectiveness.

The effectiveness of the training management system was evaluated using such criteria as access to the system and whether the feedback regarding performance was adequate.

REPORT ORGANIZATION

The methodology followed in evaluating the IVCRTS is in the following section, Section II. It explains how the data were collected, provides a discussion of how the instruments relate to the evaluation criteria, and describes the data analysis procedures. Section III describes the sample and treatment. Section IV is a discussion of the study and findings. Finally, Section V provides conclusions and recommendations. The appendices contain the data collection instruments with a summary of the data on each.

SECTION II: EVALUATION DESIGN

OVERALL DESIGN

This evaluation of the IVCRTS was designed to provide feedback regarding whether or not the objective of training OEC&S trainers to recognize OE Consultant competencies was met. The design, methodology, and data collection instruments were developed by MGA and approved by representatives of OEC&S and TDI. Details presented below follow the sequencing contained in the approved Test and Evaluation Plan (A Test and Evaluation Plan for the Interactive Video Competency Recognition System, Johnson, C.A., Ph.D., December 1982).

INSTRUMENTS

Three categories of data sources were planned for use in evaluating the IVCRTS.

1. First, the IVCRTS itself was to collect and analyze data on student performance including the proportion of correctly identified competencies, the number of trials per competency to reach criterion, and an analysis of consistent patterns of confusion in competencies.

OEC&S manually extracted the original set of such data from the IVCRTS. The researcher's review of this data set determined that additional data were needed, and OEC&S was asked to provide the data of the type and format specified in the collection plan (page 12, Test and Evaluation Plan). An extension of the period of performance was allowed by TDI for this purpose. OEC&S subsequently obtained a software program for use in extracting the desired data from the system. The data set produced via that program is contained in Appendix A.

As can be seen in a review of that data set, it still does not provide the information specified in the collection plan, i.e., the mean proportion of trainers who successfully recognized each competency and the mean

number of trials per competency to reach the established criterion (70% correct recognition). Nor were data available regarding the competencies which tend to be confused with each other.

2. Second, structured interviews were conducted. Separate interview outlines were developed and interviews conducted for the following groups and number of people:
 - a. Two coders/course developer;
 - b. Twelve trainers; and
 - c. The Director of Training, the Deputy Director of Training, and the one Division Chief.

The interview outlines and the aggregated data for each group are at Appendices B, C, and D, respectively.

3. Finally, two instruments were used to collect information from the IVCRTS users while they were using the system (Problem/Survey Log) and at the end of the evaluation period (IVCRTS Evaluation Questionnaire). These instruments, with the aggregated data, are at Appendices E and F.

The relationship between the evaluation criteria and the data collection instruments is displayed in Tables 1 through 3. The tables show the specific items in each relevant instrument that provide information regarding each criterion. Table 1 addresses the evaluation of the Inputting and Coding System. The specific data sources for evaluation of the Training System are shown in Table 2, and those to evaluate the Training Management System are in Table 3.

TABLE 1: DATA SOURCES FOR EVALUATION OF THE INPUTTING AND CODING SYSTEM

DATA SOURCES	EVALUATION CRITERIA			
	EASE OF USE	PROGRAM FLEXIBILITY	ACCEPTANCE BY COURSE DEVELOPERS	RELIABILITY
Interview of Coders (Appendix B)	*2, 3, 5, 6, 7, 9, 11, 13, 15	5, 6, 9	1, 4, 10, 11, 12, 14	1, 2, 5, 8, 15
Problem Survey/Log (Appendix E)				4, 5
IVCRTS Evaluation Questionnaire (Appendix F)				6
Interview of Trainers (Appendix C)				6, 7

* Numbers refer to items in instruments

TABLE 2: DATA SOURCES FOR EVALUATION OF THE TRAINING SYSTEM

DATA SOURCES	EVALUATION CRITERIA			
	EFFECTIVENESS	EFFICIENCY	USER ACCEPTANCE	RELIABILITY
Interview of Coders (Appendix B)	*12			12, 13
Problem Survey/Log (Appendix E)	3			4, 5, 6, 7, 10
IVCRTS Evaluation Questionnaire (Appendix F)	1, 3, 4, 10, 11	7, 11	2, 5, 6, 9	
Interview of Trainers (Appendix C)	2, 3, 4, 5, 6, 7, 10	6, 8	1, 12	2, 9
Interview of Management (Appendix D)	1, 2, 3, 6		2, 4, 5, 7	
IVCRTS Data (Appendix A)	Do 70% of trainers recognize 70% of competencies?	Number of trials to reach criterion		

* Numbers refer to items in instruments

TABLE 3: DATA SOURCES FOR EVALUATION OF THE TRAINING MANAGEMENT SYSTEM

DATA SOURCES	EVALUATION CRITERIA	
	EFFECTIVENESS	COST BENEFITS
Problem Survey/Log (Appendix E)	6	
IVCRTS Evaluation Questionnaire (Appendix F)	7,8	11
Interview of Trainers (Appendix C)	10	10

DATA ANALYSIS

IVCRTS Data

The data collected by the computer system are in two forms: 1) The percent of competency presentations correctly identified by Training Session and by Trainer(s); and 2) the percent correct recognitions for the total number of presentations for each competency. In each form, these data are provided separately for the "Name It" exercise and the "Find It" exercise. No data or computations were provided concerning the specific nature of each training session, i.e., the specific competencies presented and the frequency of presentation within a given training session. The most useful analysis made of the IVCRTS data involved computing the mean percentage of correctly identified presentations by session and trainer(s) and percentage of trainers with a mean of 70 or more percent correct competency identification across sessions.

Structured Interviews

A content analysis was performed on the data collected in the three sets of interviews (Coders/Course Developers, Trainers, and Managers). As depicted in Tables 1 through 3, aggregated data from relevant source items were used to evaluate each of the IVCRTS subsystems, i.e., Inputting and Coding, Training, and Training Manager. Appropriate response categories were developed and frequencies and percent of responses in each category were tabulated and recorded for the data from the 12 trainer interviews.

Problem Survey Log

Responses to the Problem/Survey Log are reported as frequencies and percentages. The data were also examined as a function of experience on the IVCRTS, i.e., the number of times individuals used the system. Two sub-groups were used for this purpose: 1) a group of 17 respondents indicating one-time use, and 2) a group of 7 respondents indicating multiple use, i.e., 3 or more times. Aggregated data for these two groups are presented as separate enclosures to

Appendix E. Additionally, written comments were examined, appropriate categories were developed, and frequencies and percent of response in each category were tabulated and recorded.

IVCRTS Evaluation Questionnaire

This questionnaire contains Likert scale response items. The frequency and percentage of responses for each scale point is reported along with the mean, variance, and standard deviation of each item. The same examination was made on the data from three sub-groups: 1) 13 military, 2) 3 civilian, and 3) 7 individuals who indicated that they had one year or more experience as both a trainer and a consultant. Aggregated data for these sub-groups are presented as separate enclosures to Appendix F.

SECTION III: SAMPLE AND TREATMENT

SAMPLE

The IVCRTS was used to train 20 trainers to recognize the set of competencies. Fourteen of the 20 worked in pairs. In addition to data collected from this group of trainers, 9 other individuals provided data used in the evaluation effort: 2 course developers who coded the competencies were interviewed; 4 course developers who used the IVCRTS completed the Problem Survey/Log and IVCRTS Evaluation Questionnaire; and 3 training managers were interviewed (the Director of Training, Deputy Director of Training, and a Division Chief). Table 4 shows the number and types of individuals in the sample and the data collection methods used for each.

TABLE 4: SAMPLE DESCRIPTION

COLLECTION METHOD	SOURCE	NUMBER
IVCRTS Program	Trainers	20 (14 in Pairs)
Problem Survey Log	Trainers Course Developers	20 4
IVCRTS Evaluation Questionnaire	Trainers Course Developers	12* 4
Structured Interviews	Trainers Managers Coders	12* 3 2

*A subset of the 20 trainers who used the IVCRTS.

TREATMENT

General

The 20 trainers assigned to the Training Directorate were informed through normal command channels that they would participate in an evaluation of the

IVCRTS. They were instructed to use the system at their convenience during the evaluation period (December to March) at one of two locations (the OEC&S Library Learning Center and an office in the Training Development (TD) Directorate). Both locations were suitably equipped with IVCRTS equipment and written instructions. All persons who used the IVCRTS received a thorough briefing on the the system during an initial orientation session. Written instructions were available for subsequent use, and TD personnel were on-call to answer questions and provide assistance.

In all cases, trainers were told they were expected to reach the established criterion (70% correct recognition of 70% of the 15 competencies displayed). Late in the evaluation period, OEC&S training managers learned that only a few of the trainers were actually using the IVCRTS. Consequently, the Director of Training issued instructions which resulted in each trainer being scheduled to use the IVCRTS when the trainer was not scheduled for instructor duties in the classroom.

Videotapes

Competencies were coded onto three pre-existing videotapes. Each contains 15 to 20 minutes of continuous action and was originally produced for use in the TRADOC school system to introduce and explain the OE process to service school students. On the tapes, professional actors portray an Army OE consultant interacting with clients in a military setting. In addition to the client-consultant interactions, a narrator periodically explains various aspects of the consultant's activities. Each tape has as its principal focus one of three steps in the four-step OE process. Thus, one tape explains and demonstrates activities associated with the Assessment step, one tape deals with the Planning step, and one deals with the Evaluation step. The coders located tape segments they believed to be accurate representations of the 15 competencies under consideration and coded the tapes accordingly. Depending on the tape used and the exercise option selected (i.e., "Name It or Find It"), the number of competencies available for display and the frequency with which they are presented varies (see Table 5).

TABLE 5: FREQUENCY OF COMPETENCY PRESENTATIONS

Competency	Assessment Tape (Frequency)	Planning Tape (Frequency)	Evaluation Tape (Frequency)
1. Functional Knowledge	1		1
2. Self Confidence		1	1
3. Low Fear of Rejection			2
4. Establishes Professional Rapport	1		
5. Concern for Clarity	1	4	2
6. Seeks User Input		2	
7. Uses Influence Strategies		1	
8. Communicates Clearly	1		
9. Aware of Self Impact	1		
10. Seeks Multiple Perspectives	1	2	
11. Causal Thinking			1
12. Identifies Key Themes	1	2	1
13. Problem Focused Procedures		2	
14. Seizes Opportunities			1
15. Results Orientation		1	1

IVCRTS Use Options

The basic options available to the user were described briefly in Section I and are listed again below:

- Introduction to the OE Model
- Exercise Play: "Name It" or "Find It"
- Reliability Scores
- Tutor
- Rundown

Ideally, a user would begin with the Introduction option to learn as much as possible about the competencies available for display and the behavioral indicators for each. When ready, a user would then select one of the three available tapes (i.e., Assessment, Planning, or Evaluation) and one of the two exercise modes (i.e., "Name It" or "Find It").

The "Name It" exercise is considered the easier of the two because it provides an audio cue to indicate when a competency presentation segment begins. It also stops at the end of each such segment and provides the user with three options: 1) Replay the Segment; 2) Reliability Score; and 3) Name the Competency.

An option within each exercise allows users to indicate that they will concentrate on a subset of the competencies coded on the tape in use (i.e., from three to seven or eight). Thus, in the case of "Name It," if a user indicates interest in only three specific competencies on a given tape, the audio will cue only those segments of the tape, and the list of possibles for identification will contain only those competencies identified.

"Find It" is considered more difficult in that there is no audio cue to indicate which tape segment to attend to. Nor does the system, in this exercise mode, automatically provide a selection list at the end of each presentation segment. The user must touch the screen during the presentation segment to stop the play and get a selection list from which to choose the correct competency. If the user does not detect a presentation and touch the screen during the appropriate segment, the system stops play, informs the user of a missed presentation, and provides the following options: continue; return to review the segment; identify the competency; or check reliability score. If the user elects to continue or incorrectly identifies the competency, a missed identification is scored and recorded.

Given this difference in levels of difficulty between the two exercises, the trainers were advised to work through the tapes using the "Name It" exercise option before attempting the "Find It" exercise. And, because the Planning tape was thought to be programmed for use in the "Find It" mode only, the trainers were further advised to use the Assessment and/or Evaluation tape before the Planning tape. (Recent information from OEC&S indicates that the Planning tape used at the Library location was mistakenly programmed for use in both the "Name It" and "Find It" modes.)

The Tutor feature is available for users who have trouble identifying any of the competency presentations. An important feature of the tutor option allows users to review any competency they are having trouble with.

The Reliability Score feature simply provides the user with a cumulative record of performance. This is the feature the trainers used to determine if/when they reached the established criterion.

The Rundown feature would be helpful to the user who consistently confuses one or more competencies with others. In this instance, the feature would display data only when a competency was confused with another competency at least three times.

Training Session

The individual session is the basic activity from which all IVCRTS score data originate. It consists of:

1. A user (or in many cases, a pair of users) signing on the system;
2. Participating from start to finish in one of the two exercises ("Name It" or "Find It");
3. Using one of three tapes ("Assessment," "Planning," or "Evaluation");

4. Selecting from three to eight specific competencies available on the tape; and
5. Signing off the system.

Thus, as depicted in Table 6, there are a total of 34 activity combinations possible for a given training session. A single training session, therefore, would involve some subset of the total number of possible combinations depending on: 1) the tape used, 2) the exercise option selected, and 3) the number of competencies selected from those available.

The IVCRTS software did not indicate which tape was used or which competencies were presented within each training session. This lack of information combined with the number of combinations possible made it difficult to interpret the IVCRTS performance data. These data are discussed in Section IV.

TABLE 6: COMBINATIONS POSSIBLE

TAPE	EXERCISES AND PRESENTATION OPTIONS		COMBINATIONS POSSIBLE
	NAME IT	FIND IT	
Assessment	3 competencies 4 competencies 5 competencies 6 competencies 7 competencies	3 competencies 4 competencies 5 competencies 6 competencies 7 competencies	10
*Planning	3 competencies 4 competencies 5 competencies 6 competencies 7 competencies 8 competencies	3 competencies 4 competencies 5 competencies 6 competencies 7 competencies 8 competencies	12
Evaluation	3 competencies 4 competencies 5 competencies 6 competencies 7 competencies 8 competencies	3 competencies 4 competencies 5 competencies 6 competencies 7 competencies 8 competencies	12

*This set of options was available only at the Library Learning Center site.

Procedure

After being introduced to the system by verbal briefing and given a set of written instructions, the trainer or pair of trainers, were free to use the IVCRTS as they pleased. (They were expected to work as previously instructed, i.e., using "Name It" before "Find It" and Assessment and/or Evaluation before Planning.) No data were collected for each session to indicate which tape was used, which exercise was selected, or which set or subset of available competencies was drilled.

The trainer(s) were told to work on the system until they had at least a 70% reliability score for each exercise option available on each of the three tapes. That is, each trainer, or pair of trainers, was expected to record at least one successful session (a 70% reliability score for all competencies available for display) for each of the following exercise options:

Tape	Options Available	Cumulative Number of Options
● Assessment Tape	Name It	1
	Find It	2
● Planning Tape	Find It	3
● Evaluation Tape	Name It	4
	Find It	5

This requires a minimum of five sessions with a reliability score of 70% for each trainer or pair of trainers (i.e., two successful sessions on "Name It" and three successful sessions on "Find It").

Because complete anonymity was desired, user disks were coded to prevent monitoring of individual programs. Trainers were trusted to continue to use the IVCRTS until they recorded the five successful sessions just described.

Data Collection

Each trainer was to complete a Problem Survey/Log after the first, fourth, and last session, and at any other time desired. Based on the number of sessions recorded, this could have generated a minimum of 54 responses. Forty-four percent (or 24) of this number were received.

The Evaluation Questionnaire was to be completed by all 20 trainers upon completion of the evaluation effort. Twelve were received for a response rate of 60 percent. Twelve trainers were interviewed by MGA project persons after they participated in the IVCRTS training.

SECTION IV: FINDINGS AND DISCUSSION

GENERAL

Evaluation Issues

This discussion will focus on the specific evaluation issues described in Section I of this report. These issues are listed below as they relate to the three components of the IVCRTS:

<u>Component</u>	<u>Issue</u>
Inputting and Coding System	Ease of Use Program Flexibility Acceptance by Course Developers Reliability
Training System	Effectiveness Efficiency User Acceptance Reliability
Training Management System	Cost Benefit Effectiveness

Data Summaries

The complete data on which this discussion is based are contained in Appendices A through F. Summary tables from the three largest data sets are provided here to assist in following the discussion. They are:

1. IVCRTS Data

Table 7 is a display of trainer performance scores by training session. The figures in the "Session" columns represent the percent of correctly identified competencies for each session of the "Name It" and "Find It" exercises. No data were provided to indicate which competencies were actually presented and with what frequency.

TABLE 7: PERCENT COMPETENCY PRESENTATIONS CORRECT BY SESSION AND TRAINER(S)

Trainer		Session								Mean*
		1	2	3	4	5	6	7	8	
1	Name It	57	100	60	60	54	100	100	-	76
	Find It	50	91	18	0	35	47	-	-	40
2	Name It	71	60	90	-	-	-	-	-	74
	Find It	67	100	80	30	47	58	100	-	69
3	Name It	57	40	70	100	86	38	77	-	67
	Find It	44	65	81	-	-	-	-	-	63
4	Name It	43	100	50	100	-	-	-	-	73
	Find It	50	100	58	71	-	-	-	-	70
5	Name It	43	86	33	60	-	-	-	-	56
	Find It	100	33	50	44	70	-	-	-	59
6	Name It	57	100	50	80	-	-	-	-	72
	Find It	71	70	33	-	-	-	-	-	58
7	Name It	29	40	-	-	-	-	-	-	35
	Find It	86	100	75	-	-	-	-	-	87
8	Name It	83	70	-	-	-	-	-	-	77
	Find It	50	100	64	80	43	40	-	-	63
9	Name It	86	70	-	-	-	-	-	-	78
	Find It	86	100	38	93	-	-	-	-	79
10	Name It	79	100	100	90	100	100	89	100	95
	Find It	88	77	22	-	-	-	-	-	62
11	Name It	74	60	46	80	64	18	43	-	55
	Find It	82	-	-	-	-	-	-	-	82
12	Name It	-	-	-	-	-	-	-	-	-
	Find It	50	-	-	-	-	-	-	-	50
13	Name It	-	-	-	-	-	-	-	-	-
	Find It	43	-	-	-	-	-	-	-	43
*Percent of trainers with mean session scores at or above 70: Name It - 54; Find It - 31										

Information from Table 5 (page 17) indicates that only 7 or 8 of the 15 competencies are available for presentation during a single session. Furthermore, one of the use options makes it possible for a user to further restrict the number of competencies presented during a session to a minimum of 3.

Thus, a single session provides from 20 to 53% of the 15 competencies, which means that a minimum of 3 sessions are required for exposure to all 15 competencies if all tapes and all exercise options are chosen.

Furthermore, 3 of the competencies, or 20%, are available only on the Planning tape, which, for the most part, was used only with the "Find It" exercise.

Regarding frequency of presentations, the Assessment and Evaluation tapes (available with "Name It" and "Find It" exercises) presented all but 2 of 12 competencies only once during a single training session. Thus, learning gains would have to be tracked across sessions rather than within sessions.

Of the 8 competencies available on the Planning tape (for use with the "Find It" exercise only), one is presented 4 times, 4 are presented twice, and 3 are presented only once.

Table 8 is a display of the mean performance scores for all trainers by competency. Figures in the "Presentations" column show the total number of times a given competency was presented in the "Name It" and the "Find It" exercises for all sessions. Figures in the "Recognitions" column show the percent of correct recognitions for all presentations of the competency.

TABLE 8: PERCENT CORRECT RECOGNITION BY COMPETENCY

Competency	Exercise Option	Total Number Presentations	Percent Correct Recognitions	Mean
Functional Knowledge	Name It Find It	65 44	63 66	65
Self Confidence	Name It Find It	37 56	70 70	70
Low Fear of Rejection	Name It Find It	64 43	77 79	78
Establishes Professional Rapport	Name It Find It	34 23	89 83	86
Concern for Clarity	Name It Find It	112 175	72 58	65
Seeks User Input	Name It Find It	12 70	75 52	64
Uses Influence Strategies	Name It Find It	8 34	25 35	30
Communicates Clearly	Name It Find It	33 27	61 52	57
Aware of Self Impact	Name It Find It	33 24	70 67	69
Seeks Multiple Perspectives	Name It Find It	40 61	75 59	67
Causal Thinking	Name It Find It	30 21	77 95	86
Identifies Key Themes	Name It Find It	78 117	83 69	76
Problem Focused Behavior	Name It Find It	13 85	54 48	51
Seizes Opportunities	Name It Find It	32 21	100 95	98
Results Orientation	Name It Find It	38 71	69 45	55
Mean/Standard Deviation	Name It Find It	67.30/20.50 64.90/17.68		69

2. Problem Survey/Log

Table 9 provides a summary comparison, by groups, of the data obtained from the Problem Survey/Log. The number responding to each survey item and the percentage of responses to item options are shown for all data, the one time users, and the multiple users.

3. IVCRTS Evaluation Questionnaires

Table 10 shows the scale, mean responses, and standard deviation for All Data, Military, Experienced Consultants/Trainers, and Civilians. For items 1 through 10, the low end of the scale is anchored to the negative verbal cue, the high end to the positive cue, and the midpoint on the scale is anchored to the neutral cue.

This comparison indicates that there were no significant differences in the responses by groups. (It is noted, however, that the three civilian members are generally less positive in their responses.)

In the discussion of these data that follows, references are made to the All Data Summary contained in Table 11. This table reproduces the questionnaire and provides the mean response for each item (horizontal marker) and one standard deviation above and below the mean (vertical line).

Interview data from the 2 coders, 12 trainers, and 3 managers are in summary form in Appendices B, C, and D, respectively.

TABLE 9: PROBLEM SURVEY/LOG
ALL DATA, ONE-TIME USE, AND MULTIPLE USE COMPARISON

Survey/Log Item:	All Data N=24	One-Time Use Data N=17	Multiple Use Data N=7
2. Features Used:	(N=22)	(N=15)	(N=7)
Introduction-	.32	.40	.00
"Name-It"-	.86	.93	.57
"Find-It"-	.64	.47	1.00
Tutor-	.09	.07	.14
Reliability Scores-	.73	.87	.29
Rundown-	.55	.67	.29
Problems Encountered:	(N=17)	(N=11)	(N=6)
3. Unsure what to do next-	.53	.55	.33
4. Touched panel and nothing happened-	.76	.82	.83
5. Sure gave right answer but it differed from coding-	.88	.91	.67
6. Terminology confusing-	.00	.00	.00
7. Needed to ask for assistance-	.53	.45	.50
8. Trouble getting access-	.12	.09	.17
9. If told you were incorrect, were you satisfied as to why?	(N=23)	N=16)	(N=7)
Yes	.04	0	.14
Somewhat	.39	.38	.43
No	.57	.63	.43

TABLE 10: IVCRTS EVALUATION QUESTIONNAIRE
ALL DATA AND SUBGROUP COMPARISON

MEAN RESPONSE/STANDARD DEVIATION BY GROUP				
Questionnaire Items	All N=16 Mean (SD)	Military N=13 Mean (SD)	Experienced N=7 Mean (SD)	Civilians N=3 Mean (SD)
1. Influenced confidence in recognizing competencies. (Scale: 1 to 5)	3.5 (.82)	3.6 (.77)	3.4 (.96)	3 (1.0)
2. Interest while using. (Scale: 1 to 5)	3.5 (1.2)	3.6 (1.3)	3.4 (1.3)	3 (1.0)
3. Learning applied to classroom. (Scale: 1 to 5)	3 (1.2)	3.2 (1.2)	3 (1.4)	2.3 (1.2)
4. IVCRTS effectiveness in training competencies. (Scale: 1 to 5)	3.9 (1.3)	3.9 (1.3)	3.7 (1.4)	3.6 (1.5)
5. Like to see technology used for other OEC&S training. (Scale: 1 to 5)	3.8 (1.5)	3.8 (1.4)	3.4 (1.7)	3.3 (2.1)
6. Accurately simulated OE consultant's job. (Scale: 1 to 5)	3.3 (1.4)	3.2 (1.5)	3.1 (1.5)	3.3 (1.2)
7. Availability for use. (Scale: 1 to 3)	2.9 (.34)	2.8 (.36)	2.9 (.38)	3. (.00)
8. Adequacy of performance score display. (Scale: 1 to 4)	2.7 (.95)	2.8 (.93)	2.7 (1.1)	2.3 (1.2)
9. Would recommend to train recognition skills. (Scale: 1 to 4)	3 (1.1)	3 (1.2)	2.7 (1.3)	3 (1.0)
10. Increased frequency of using competency language. (Scale: 1 to 3)	1.6 (.73)	1.6 (.77)	1.6 (.79)	1.3 (.58)

TABLE 11: IVCRTS EVALUATION QUESTIONNAIRE BY ITEM RESPONSE - ALL DATA
(N=16)

1. How did use of the IVCRTS influence your confidence in recognizing the competencies?

- ☒
 - Greatly increased my confidence.
 - Increased my confidence.
 - Did not change my confidence.
 - Decreased my confidence.
 - Greatly decreased my confidence.

2. How interested were you while using the IVCRTS?

- ☒
 - Very interested.
 - Interested.
 - Neutral.
 - Bored.
 - Very bored.

3. How much of what you learned using the IVCRTS could be applied in the classroom?

- ☒
 - Almost all of what I learned.
 - Most of what I learned.
 - Not sure.
 - Little of what I learned.
 - None of what I learned.

4. How effective do you think the IVCRTS is in training competency recognition?

- ☒
 - Very effective.
 - Somewhat effective.
 - Undecided.
 - Somewhat ineffective.
 - Very ineffective.

5. Would you like to see IVCRTS-type technology used for additional training (for students or trainers) at OEC&S?

- ☒
 - Definitely.
 - Probably.
 - Undecided.
 - Not particularly.
 - Definitely no.

TABLE 11: (Continued)

6. How accurately do you think the videotapes simulate the OE Consultant's job?

—→
• Very poorly.
• Not too well.
• Undecided.
• Okay.
• Very well.

7. Did you have any problem being able to use the IVCRTS when you wanted to (i.e., due to location, hours available, etc.)?

—→
• Never.
• Sometimes.
• Almost always.

8. How adequate is the score display provided by the IVCRTS regarding your performance?

—→
• Superb.
• Good.
• Adequate.
• Poor.

9. Would you recommend using IVCRTS technology to a friend who was looking for a way to train recognition skills?

—→
• Yes, very highly.
• Yes, with a few reservations.
• Maybe, depending on certain factors.
• No, not at all.

10. How much more frequently do you use competency "language" now compared to before you used the IVCRTS?

—→
• Not at all.
• Slightly more frequently.
• Much more frequently.

TABLE 11: (Continued)

11. There are many potential methods of training competency recognition. In your opinion, how would each of the following methods compare to the IVCRTS in terms of effectiveness. Place a checkmark in the appropriate column. (Shown by percent responses.)

<u>Less Effective than IVCRTS</u>		<u>More Effective than IVCRTS</u>	
Written programmed learning	.81	Structured Experiences	.75
Self study tapes	.80	Role playing	.73
TV tapes	.80	Case Study	.63
Case study	.38	TV Tapes	.20
Role playing	.27	Self study tapes	.20
Structured Experiences	.25	Written programmed learning	.19

12. How long have you been a trainer at OEC&S?

- Over 4 years
- 2-3 years
- • 1-2 years
- Less than 1 year
- No experience

13. Are you:

- .81 (13) Military
- .19 (3) Civilian

14. Have you had experience doing O.E./O.D. consulting?
If so, how long?

- Over 5 years
- 3-4 years
- 2-3 years
- • 1-2 years
- Little experience
- No experience

INPUTTING AND CODING SYSTEM

Two members of the OEC&S Training Development staff served as coders for the IVCRTS. They usually worked independently and served as a cross-check on each other's coding.

Ease of Use

The majority of the coder comments indicated that the inputting and coding system is quite easy to use. The system was considered to be "very user friendly" and did not overload the coders with information. They both found it easy to locate specific segments on the video by stopping the video at the appropriate place or by locating a segment with the frame number. Two persons were considered to be the optimal number for coding.

Certain competencies were much easier to identify than others and some were easily confused. Those which were mentioned as easily identified were Functional Knowledge, Establishes Professional Rapport, Seizes Opportunities, Seeks Multiple Perspectives, Communicates Clearly, and Identifies Key Themes. Seeks User Input and Concern for Clarity were easy to identify but it was difficult to identify the criteria or indicators of these competencies. The competencies which were difficult to identify for coding purposes included Awareness of Self Impact, Perceptual Objectivity, Causal Thinking, and Seizes Opportunities. This group of competencies seems to be distinguished from the easily identified list by being less behaviorially oriented. There was a tendency to confuse certain competencies. Concern for Clarity was sometimes confused with Seeks User Input and also with Results Orientation. Self Confidence and Low Fear of Rejection also had a tendency to be confused. This appears to be more a function of the independence of the competencies than the IVCRTS system.

The coders disagreed on the adequacy of the coding system instructions. One found them to be complete, the other felt that they were slim and that it was necessary to read them carefully to use the system.

While they agreed that there was a learning curve which took place for the inputting and coding system, they disagreed on the amount of time it takes to learn the system. One felt a formal training program of 1 to 2 weeks would be advantageous, the other stated that it takes only 10 minutes to train a novice as a coder. The coding system is complex. It includes 9 functions, 23 tasks and 26 operations to choose from. It is necessary to understand the operations prior to selecting a function or a task. However, it was recognized that complexity was necessary in order to have a flexible system. It was recommended that backup manual data be kept initially on the coding, so that if a mistake was made, the information would not be lost.

Even after the coders learned to use the system, they found that it was not possible to code for extended periods of time. Coding is intense and requires a high degree of alertness. Mistakes occur after working on the system for too long a time period.

Program Flexibility

Comments regarding the flexibility of the inputting and coding system were mixed. The coders agreed that the system was flexible in that it was very easy to re-code competencies. There were initial problems in modifying the windows of a segment, but after they learned the system, they were able to make very minute adjustments.

Initially, there was some problem exiting a program. If no competencies were selected, it was necessary to go through the entire video before exiting the program. The coders decided to handle this by changing the program to require the selection of a minimum of three competencies. Some tasks will not allow a coder to exit even if a wrong choice has been made. For example, if a segment has been selected, it is necessary to code it in order to exit the program. Then, if it has been incorrectly selected, it is possible to erase it.

Among the ways the coders would like to improve flexibility are to be able to add or delete competencies and to be able to add supporting narrative material

to the program. They would also like to have "Tutor" accessed within the "Name It" program in addition to the "Find It" program.

The major disadvantage in terms of program flexibility is that the coders are restricted to the given software which is expensive to change.

Acceptance by Course Developers

The IVCRTS is regarded very positively by course developers. They are impressed with the inputting and coding system. Other systems require inputting and coding to be done by programmers, using subject matter expert input, at the manufacturer's site. By doing their own coding, the OEC&S staff feel a sense of ownership of the product, and being able to do the coding at OEC&S helps to eliminate miscommunication. The coders expressed a sense of being able to influence technology for training development.

Among the advantages of the system is the fact that it is possible to code anything which has been filmed, although they felt that they had not understood the system well enough to have sufficient appropriate video on hand.

The coders also like the immediate feedback provided by the IVCRTS. Other training systems have to be implemented before course developers get feedback. However, the computer aspect of this system is both challenging and provides immediate feedback. One stated that it was "like playing Atari."

Despite the subjective nature of the coding process, the coders are fairly confident regarding the accuracy of their coding. Of the approximately 60 codes, they only seriously disagreed over 2 or 3 segments. Five to ten others were resolved by viewing and discussing the segments. They reached consensus on all of the segments and ran test people through the system for further verification. The fact that the system focuses on specific behaviors and skills assists in the coding process. They have coded all 15 competencies but feel limited by the fact that their coding capability was limited to 15.

Among disadvantages of the system mentioned by the coders are that only a small number of people can use the system at a time. There is also no motivation for trainees to select the correct criteria or indicators of a competency as they are not scored on this. In addition, there is a problem reproducing the videotapes as the color loses resolution and the time code is not reproduced. This means that each reproduction has to be manually re-coded.

In general, however, the coders felt that the system has a lot of potential and they are looking forward to the second generation. Such improvements as touch sensitive screens, branching programs, and learning profiles will enhance a system that they are already quite enthusiastic about.

Reliability

There were no real reliability problems due to the system itself insofar as the coders were concerned. They felt that any problems they had were self-imposed. The system requires the same safeguards as any computerized system, e.g., a specific location away from a window and electronic safeguards. At the time of the interviews, one of the light pens was not working, but this was considered to be a minor problem. They did recommend putting protective tape around any disks that are not to be written on.

The trainers disagreed rather frequently and sometimes strongly, with the coding of the competencies. This issue will be discussed in more detail in the discussion of the training system.

In summary, the inputting and coding system was very favorably received by the coders. While complex, they found it easy to learn to use. They had no major problems with the reliability of the system. Although they would like more flexibility in the program, they were quite impressed with the system.

TRAINING SYSTEM

Effectiveness

The basic question to be answered regarding this issue is whether or not 70% of the 20 trainers in the sample learned to correctly identify 70% of the 15 competencies as coded and displayed on the IVCRTS.

The performance data collected via the IVCRTS software program (Tables 7 and 8) do not directly provide a clear answer to the basic question. That is, the quantitative data in these tables are insufficient in detail and unsuitable in format to lead directly to a clear conclusion in this regard. Nevertheless, the researchers interpreted the total data (i.e., the IVCRTS data, questionnaire data, and interview data) to support a general statement that 70% of the sample of trainers did not sufficiently demonstrate an ability to correctly and consistently identify 70% of the 15 competencies coded and displayed on the IVCRTS.

As an absolute minimum, a trainer would have had to record at least one 70% correct session in "Name It-Assessment," one 70% correct session in the "Name It-Evaluation", and one 70% correct session in the "Find It-Planning" exercises to reach criterion. And even this assumes that in each session all available competencies were displayed. It also assumes that those incorrectly identified were none of 3 different competencies on each tape that are not available on the other 2 tapes (total of 9 competencies).

Referring to Table 7, it is noted that 9 trainers (or 75%) recorded 2 successful (at least 70%) "Name It" sessions and 1 successful "Find It" session. It is noted also that all 9 recorded 1 or more unsuccessful (less than 70%) sessions after a minimum number of successful sessions were recorded. Furthermore, 5 of these 9 trainers recorded an unsuccessful last-session in either the "Name It" or "Find It" exercise. Altogether, 5 last-session "Name It" sessions and six last-session "Find It" sessions were recorded at below the 70% criterion. Mean scores computed and provided in Tables 7 and 8 also support the conclusion that the established criterion was not reached. For example, in Table 7, only 54% of the

trainers had mean session scores at or above 70 in "Name It," and only 34% had mean session scores at or above 70 in "Find It."

This conclusion is not meant to be a criticism of the IVCRTS. Although the IVCRTS performance data were insufficient, there were several other factors which had more direct influence on the effectiveness issue.

Both the trainer interviews and the management interviews provided information that clearly indicates that this test effort was not well received by the trainers in the first place. They were not willing participants. They obviously considered their participation an added burden that competed with other work requirements. They were eventually ordered to participate according to a monitored schedule, and as information from their managers show, they resented such pressure. Several trainers indicated that their only objective during their training sessions was to figure out how to "beat the machine" in order to reach the desired criterion. Two of the trainers recorded only one training session and a third never recorded a score of 70 or more during two sessions of "Name It."

The trainers frequently and sometimes strongly disagreed with the coding of the competencies. This was revealed repeatedly in the interviews. Forty-two percent of the trainers interviewed said the IVCRTS did not adequately assess their level of competency recognition. Another 42% answered the same question with a qualified "yes." The qualification was most often stated, "yes, if we accept the assumption that the competencies were coded accurately in the first place."

When asked how the IVCRTS system could be improved, 47% of the suggestions dealt with ways to improve the coding process. The researchers were unable to establish any pattern or draw any meaningful conclusions from trainer interview comments concerning specific competency presentations (see summary at Table 12).

TABLE 12: TRAINER COMMENTS
COMPETENCY RECOGNITION AND DISPLAY

Competency N=15	Harder to Train Recognition N=17	Best Displayed N=17	Worst Displayed N=14
Establishes Professional Rapport			.29 (4)
Seizes Opportunities		.24 (4)	
Results Orientation	.06 (1)	.18 (3)	
Aware of Self Impact	.18 (3)	.06 (1)	
Uses Influence Strategies	.12 (2)		.07 (1)
Seeks Multiple Perspectives	.12 (2)		
Problem Focused Procedures	.12 (2)		
Low Fear of Rejection	.12 (2)	.12 (2)	.07 (1)
Concern for Clarity	.12 (2)	.06 (1)	.07 (1)
Self Confidence	.06 (1)	.12 (2)	.14 (2)
Perceptual Objectivity	.06 (1)		.07 (1)
Identifies Key Themes	.06 (1)	.06 (1)	.07 (1)
Causal Thinking		.06 (1)	.14 (2)
Seeks User Input		.06 (1)	
Functional Knowledge		.06 (1)	.07 (1)

The trainers do seem to think that a larger group of experienced trainers/consultants (i.e., an expert panel) should be involved in the coding process.

From the Problem Survey/Log it is noted that 57% of the respondents said they were not satisfied with the reason provided when they did not correctly identify a competency. (This response differed noticeably between one-time users (.63) and multiple users (.43).)

In the questionnaire data, 38% of the respondents said they thought the IVCRTS was effective in training competency recognition, and another 38% said the system was somewhat effective.

In comparing potential methods of training competency recognition, the respondents think Structured Experiences, Role Playing, and Case Study more effective than the IVCRTS. (These are primary methods currently employed in the OEC&S classrooms.) IVCRTS is considered more effective than Written Programmed Learning, Self Study Tapes, and TV Tapes.

Another general criticism expressed by the trainers concerns their perception that competency recognition is not necessarily relevant to their work in the classroom. Several trainers attempted to show us that there is no direct connection between the competencies and classroom learning objectives. When asked in what way their recognition skills had been used in the classroom since their IVCRTS training, 58% said they had not used the skills while 25% said they were more sensitive to competency behaviors and 8% said they now use more of the competency language in the classroom.

Eighty-three percent of the trainers interviewed said the IVCRTS training had not helped them do their job better or easier.

Twenty-nine percent of these trainers said they thought they are now more aware of competency-type behavior.

Two of the three managers interviewed said they had observed no change in the behavior of trainers since the training. The other manager said he was not sure if he had noticed any changes.

Two of the three managers said they had no evidence that the trainers were better able to recognize competencies; the other thought he had heard a little more behavioral terms and competency language from his trainers.

Two managers said the IVCRTS training had not yet contributed to training effectiveness and the third manager said he could not answer the question.

Efficiency

There are no firm data to support a conclusive finding regarding the efficiency of the IVCRTS as it was employed in this evaluation effort. It is not known, for example, how many trials or how much time was required to train a trainer to consistently recognize a given competency. The mean score computations provided in the IVCRTS data tables are not encouraging in this regard. There appears to be no strong trend in improved performance across sessions.

Thirty three percent of the trainers interviewed think the system has good potential as an efficient training method if improved upon; 25% think it compares favorably with other methods; and 25% think it is the best method.

The system was readily accessible. Only one trainer said he could not use the system when he wanted to.

Fifty percent of the trainers said the Rundown feature was not useful; 17% did not remember what the feature was; and 33% said the feature was useful. As the coders have since learned and reported, this feature was rarely employed because, as now programmed, it requires a single competency to be confused with another a minimum of three times. This apparently did not occur during the sessions recorded.

User Acceptance

From the evaluation questionnaire, it is noted that user interest in the system ranged from "very bored" to "very interested," with the mean response being midway between "neutral" and "interested." Thirty-eight percent of the 16 respondents indicated they would definitely like to see IVCRTS-type technology used for additional training at OEC&S. Forty-four percent would recommend the IVCRTS very highly to a friend looking for a way to train recognition skills. Twenty-five percent would recommend it with reservations.

During the trainer interviews, 26 "best features" of the system were cited, including: interactive; interesting/novel; user friendly; competency presentations; convenience; instant feedback; quality of the film; and concentration on a narrow set of learning objectives.

Of the 29 suggested improvements, 17 (or 59%) dealt with ways to improve the competency presentations. These included: better, more realistic coding (from 8 trainers), separate scenarios for "Name It" and "Find It"; brief, concise competency definitions; limit number of competencies considered to 12; eliminate need to identify the competencies in a prescribed order, provide study material before training; and develop scenarios for specific competencies.

When asked for an overall reaction to the IVCRTS, 7 (or 56%) gave generally negative comments, while 5 (or 42%) gave generally positive comments.

Reliability

The IVCRTS is a highly sophisticated and complex system. The coders are still learning how to interact with it and how it may be used to best advantage.

Not all of the available IVCRTS features were well used by the trainers who tested the system. As an example, of the 22 users who completed Problem/Survey Logs, only 32% indicated they had used the Introduction feature.

As described in the previous section, this feature is the primary means of orienting the user to the competency model, definitions, and behavioral indicators.

The Tutor was the least used feature of the system. Only 7% of first time users engaged the Tutor, while 14% of multiple users did so.

As would be expected, the "Name It" exercise was played by most first-time users (93%), while the "Find It" exercise was played by all multiple session users.

The Reliability Score feature was used heavily by first-time users (87%) and much less by multiple session users. This may indicate that those who continued to use the system for three or more sessions were less concerned with reliability scores.

Several problems were encountered by the trainers. Fifty-three percent indicated they experienced occasions when they did not know what to do next. This became less of a problem for those who continued to work with the system during multiple sessions.

A significant and continuing problem for most users involved the use of the light pen. Seventy-six percent of the respondents indicated they touched the panel and nothing happened. According to the coders, the system will not respond unless the pen touches the panel slightly below a desired item and on a bright portion of the screen.

When asked in the interviews about consistent problems with the system, 58% of the trainers said they had difficulty with the light pen; 25% said they had problems getting the equipment to work; and 17% said they had trouble getting their profile scores.

Generally, the Rundown feature was not found to be useful, primarily for reasons discussed earlier.

TRAINING MANAGEMENT SYSTEM

Cost Benefit

The training management mechanism appears to have succeeded well in recording accurately the performance computations it is currently programmed to make. The system now computes for each trainer the percentage of successful recognitions for each competency and displays the computation in the form of a histogram. The system also computes aggregate scores of the type displayed in Tables 7 and 8.

As has been discussed, the system does not provide information concerning which competencies are drilled by session, with what frequency they are presented, or in what sequence they are presented. Nor is there trial data that would allow one to follow the progression of trial performance to the desired criterion. Such data are required to conduct a cost benefit analysis of the type intended when the evaluation plan was prepared.

Effectiveness

Most data items which address this issue are taken from the Problem Survey/Logs and the Evaluation Questionnaire.

None of the trainers found the terminology contained in the system confusing, nor was the system availability a problem.

In responding to the question, "How adequate is the score display regarding your performance?", the trainers rated the display "adequate" to "good." And, as has already been mentioned, 42% of the trainers thought the system did not adequately assess their level of competency recognition, while 42% qualified their answer that the system did adequately assess their competency level.

SECTION V: SUMMARY AND RECOMMENDATIONS

SUMMARY

This analysis of available data led to the following summary conclusions:

1. The IVCRTS is a highly complex and sophisticated training apparatus that is potentially very useful in the OEC&S environment, especially if combined with other training methods.
2. The IVCRTS Inputting and Coding System requires several weeks of study and hands-on experience to enable coders to use it to its full potential.
3. The IVCRTS Training System, as it was employed in this evaluation effort, did not bring about the training results desired.
4. Factors which contributed most to the training performance obtained were:
 - Limitations inherent in the videotapes used;
 - The nature of the skills being trained;
 - The subjectivity involved in the coding process;
 - Absence of strong motivation of the sample of trainers;
 - Conditions under which the evaluation was conducted; and,
 - Absence of needed data.
5. The IVCRTS Training Management System does not record data in sufficient detail or appropriate format to adequately assess training gains.

RECOMMENDATIONS

Continue Evaluation

It is recommended that OEC&S continue to evaluate the effectiveness and efficiency of the IVCRTS in the OEC&S setting. The majority of the people who contributed to the evaluation effort appear to think that there is a place for the IVCRTS within OEC&S. Most trainers, it seems, would be interested in using the IVCRTS in combination with one or more of the training methods now employed in the classroom. The training managers are particularly optimistic about the future use of the IVCRTS, particularly in the areas of standardization of instruction and grading. The training developers view the IVCRTS as an excellent resource and are looking forward to expected improvements in the system.

Use Panel of Experts to Code

The apparent lack of success of the IVCRTS in this case may have resulted more from the nature of the skills being trained (i.e., the McBer competencies) than from the system itself. The consultant-client interaction is a highly complex one that requires the successful consultant to demonstrate a large number of competencies, often simultaneously. Any selected segment of sequential behaviors is so rich with possible combinations that a forced choice of some single and minute part is artificial at best. Add to this the highly subjective nature of the coding process, and the chances of reaching a meaningful level of agreement diminishes significantly.

Nevertheless, agreement could probably be improved upon in this case if more experienced people were involved in the coding process. It is recommended, therefore, that a larger panel of subject matter experts with demonstrated success as both instructors and consultants be involved in the competency coding process.

Relate Competencies to Class Learning Objectives

Learning objectives for each block of instruction apparently do not incorporate specific competencies or competency based behaviors. If, in fact, an objective of the Program of Instruction is to train the essential competencies identified in the McBer study, then it seems appropriate that learning objectives incorporate specific competencies as appropriate to each objective.

Evaluate IVCRTS Through Student Use

Assuming that the competencies support classroom learning objectives and that an expert panel can agree to realistic coding procedures, it seems the IVCRTS has more potential for use as a training mechanism for students in the consultant's course. In addition to assisting in the standardization of instruction and grading, the IVCRTS could be used to compliment the existing methods of instruction. Furthermore, since the students' activities are controlled and monitored closely, it is likely that the effectiveness and efficiency of the IVCRTS could be more accurately assessed with such a group. The students are also more likely to be motivated to use the system to its full potential.

Modify the Individual Training Management System

With more control over the users of the IVCRTS (i.e., students in the course) and perhaps with additional program software, it should be possible to obtain more and better data to assist in evaluating the effectiveness and efficiency of the system. As a minimum, there needs to be a record of which competencies are presented in each session, in what order, and with what frequency. Additionally, the amount of time devoted to each session should also be recorded. These data should be available for each individual and for groups of individuals.

Also, for maximum effect, students should be required to demonstrate ability on the system individually rather than in pairs.

Locate/Develop Other Videotapes

Finally, it is recommended that additional videotapes be located and/or developed to allow for both the coding of additional competencies and the coding of the same competencies in different settings or contexts. If possible, the videotapes would be of actual consulting activities and would not contain distracting narrator commentary.

APPENDIX A

IVCRTS DATA

- Page A-2: Percent Competency Presentation Correct by Session and
Trainer(s) for Name-It.
- Page A-3: Percent Competency Presentation Correct by Session and
Trainer(s) for Find-It.
- Page A-4: Percent Correct Recognition for Each Competency in Name-It.
- Page A-5: Percent Correct Recognition for Each Competency in Find-It.

IVCRTS DATA

TABLE 1
PERCENT COMPETENCY PRESENTATION CORRECT BY
SESSION AND TRAINER(S) FOR NAME-IT

Trainer	Session								Mean
	1	2	3	4	5	6	7	8	
1	57	100	60	60	54	100	100	-	76
2	71	60	90	-	-	-	-	-	74
3	57	40	70	100	86	38	77	-	67
4	43	100	50	100	-	-	-	-	73
5	43	86	33	60	-	-	-	-	56
6	57	100	50	80	-	-	-	-	72
7	29	40	-	-	-	-	-	-	35
8	83	70	-	-	-	-	-	-	77
9	86	70	-	-	-	-	-	-	78
10	79	100	100	90	100	100	89	100	95
11	74	60	46	80	64	18	43	-	55
Mean	62	75	62	73	76	64	70	100	% ≥ 70 64

IVCRTS DATA

TABLE 2

PERCENT COMPETENCY PRESENTATION CORRECT BY
SESSION AND TRAINER(S) FOR FIND-IT

Trainer	Session							Mean
	1	2	3	4	5	6	7	
1	50	91	18	0	35	47	-	40
2	67	100	80	30	47	58	100	69
3	44	65	81	-	-	-	-	63
4	50	100	58	71	-	-	-	70
5	100	33	50	44	70	-	-	59
6	71	70	33	-	-	-	-	58
7	86	100	75	-	-	-	-	87
8	50	100	64	80	43	40	-	63
9	86	100	38	93	-	-	-	79
10	88	77	22	-	-	-	-	62
11	82	-	-	-	-	-	-	82
12	50	-	-	-	-	-	-	50
13	43	-	-	-	-	-	-	43
Mean	67	84	52	53	49	48	100	% \geq 70 31

IVCRTS DATA

TABLE 3

PERCENT CORRECT RECOGNITION FOR EACH COMPETENCY
IN NAME-IT

Competency	Total Number Presentations	Percent Correct Recognitions
Functional Knowledge	65	63
Self Confidence	37	70
Low Fear of Rejection	64	77
Establishes Professional Rapport	34	89
Concern for Clarity	112	72
Seeks User Input	12	25
Uses Influence Strategies	8	25
Communicates Clearly	33	61
Aware of Self Impact	33	70
Seeks Multiple Perspectives	40	75
Causal Thinking	30	77
Identifies Key Themes	78	83
Problem Focused Procedures	13	54
Seizes Opportunities	32	100
Results Orientation	38	69
Mean = 67.30		
SD = 20.50		

IVCRTS DATA

TABLE 4

PERCENT CORRECT RECOGNITION FOR EACH COMPETENCY
IN FIND-IT

Competency	Total Number Presentations	Percent Correct Recognitions
Functional Knowledge	44	66
Self Confidence	56	70
Low Fear of Rejection	43	79
Establishes Professional Rapport	23	83
Concern for Clarity	175	58
Seeks User Input	70	52
Uses Influence Strategies	34	35
Communicates Clearly	27	52
Aware of Self Impact	24	67
Seeks Multiple Perspectives	61	59
Causal Thinking	21	95
Identifies Key Themes	117	69
Problem Focused Procedures	85	48
Seizes Opportunities	21	95
Results Orientation	71	45
Mean =		64.90
SD =		17.68

APPENDIX B

COURSE DEVELOPERS INTERVIEW COMMENTS

COURSE DEVELOPERS INTERVIEW COMMENTS

(Two Course Developers Were Interviewed)

1. What advantages/disadvantages do you see for course developers using interactive video training systems?

Advantages:

- o Other systems require inputting and coding to be done at corporation while IVCRTS can be done on-site -it eliminates miscommunication.
- o New technology for training development.
- o Multi-media - anything on film can be used.
- o Other systems have to be implemented before course developers get feedback, IVCRTS allows immediate feedback.
- o Focuses on specific behaviors, skills.

Disadvantages:

- o Cannot code for 8 hours - need to use all senses and be alert -it's too intense.
- o No motivation for student to select correct criteria - is not scored.
- o Very complex coding system: 9 functions, 23 tasks, 26 operations - need to understand operations to choose function tool. Need formal training to use: 5 days - 2 weeks.

But a flexible system requires complexity.

- o Can only use with small number of people at a time.
- o Tied into set software -expensive to change.
- o Easy to confuse - "concern for clarity" and "seeks user input."

2. What, if any, problems did you encounter in using the IVCRTS inputting and coding system?

- o 2 coders is optimal - 3 would be too many.
- o There is a tendency for 2 coders to communicate, but if one was at the keyboard, the other may not pay attention.

COURSE DEVELOPERS INTERVIEW COMMENTS

- o The subjective nature of the coding can lead to disagreement on coding a segment - this was sometimes solved by "who yelled loudest."
 - o Have reached consensus on all segments - coding was corrected by running test people through system.
 - o Mistakes occurred after working on system too long.
 - o One light pen currently not working.
3. Did you find the instructions for using the inputting and coding system clear and unambiguous?
- o Instructions were complete.
 - o Instructions were slim.
 - o There was no information overload.
 - o Very user friendly - it asks prior to erasing input.
4. Is there anything you would like to see changed or added to improve the inputting and coding system?

Each time a tape is copied, it loses resolution. It would be better to have exact time-coding; now, we have to manually recode.

Need to change to touch-sensitive screen.

Problem:

- o Only 16 competencies on system.
- o Did not understand system well enough to have enough appropriate video on hand.

Main advantage:

- o Ability to code any video.

Improvement wanted:

- o Tutor is only keyed by "Find It" - would like to be able to access it by "Name It."
- o Like to add coder's ability to add or delete competencies.

COURSE DEVELOPERS INTERVIEW COMMENTS

Change:

- o Ability to add supporting narrative material - don't produce fully capable course.

Anxious for second generation's touch screen, learning profile, branching program.

5. Did you ever want to exit the program and not be able to easily?

Problem exiting program:

- o If competencies are not selected, will go through entire program - plan to change it to requiring selection of a minimum of 3 competencies.
- o If a segment has been chosen, it has to be coded to exit the program - then, if necessary, can be backed and erase.
- o Some tasks will not allow you to exit even if you made the wrong choice.

6. Did you have any problems modifying the windows of a segment? Why?

- o Initial problems in modifying segment windows - but improved with learning.
- o At first, had problem modifying the windows of a segment. Later, there was no problem.
- o There is a learning curve and can now make very minute changes.

7. Were you able to locate specific segments easily? Why or why not?

- o Easy to locate specific segments.
- o Very easy to locate specific segments - can view and stop video codes and identifies frame number. If you change your mind, the segment can be found with the frame number.

COURSE DEVELOPERS INTERVIEW COMMENTS

8. Did you ever use a command and find that what you intended to happen did not occur? How frequently?
 - o If you have disks that you don't want to be written on, put protective tape around.
 - o Did not have a problem using a command and finding that what was intended did not occur.
9. Did you encounter any difficulties in re-coding competencies? What?
 - o No difficulties in recoding competencies - flexible system.
 - o No difficulties in recoding competencies.
10. Were there any problems obtaining consensus as to which competency was being displayed? If so, how was it resolved?
 - o 98% agreement between coders. 1-2 segments emphatic disagreement. 5-10 talked over.
 - o View and discuss to resolve 60 codes, 3 segments disagreed.
11. Were some competencies easier to identify than others? Which ones were clear? Which ones did you have trouble with?
 - o Certain competencies frequently coded:
 - Self confidence
 - Identify key themes
 - Results orientation
 - o Communicates clearly - constantly there, not coded frequently.
 - o Tendency to mix some competencies:
 - Concern for clarity and results orientation.
 - Self confidence/low fear of rejection.
 - Concern for clarity/seeking user input.
 - o Difficult to identify:
 - Aware of self impact
 - Perceptual objectivity
 - Causal thinking
 - Seizes opportunities

COURSE DEVELOPERS INTERVIEW COMMENTS

- o Clearly identified:
 - Functional knowledge
 - Oral presentation skills
 - Identify key themes
 - o Seeks user input and concern for clarity easy but difficult to capture criteria.
 - o Certain competencies clearly identified:
 - Seeks multiple perspectives
 - Seizes opportunities
 - Establishes professional rapport
 - Functional knowledge
 - o Have coded all 16 competencies.
12. How confident do you feel about the accuracy of the coding? Why?
- o Feel 80% confident of accuracy of coding
 - o Pretty confident regarding accuracy of coding
13. In general, did you find the inputting and coding system easy to use? Why?
- o Inputting system allows freedom to do coding and make corrections.
 - o Need to have backup manual data on initial coding.
 - o Takes learning.
 - o Need to read instructions carefully.
 - o In general, found inputting and coding system easy to use.
14. What is your overall reaction to the inputting and coding system? Be explicit and objective.
- o System has lots of potential
 - o Like to see coders trained first.
 - o People are attracted to the computer aspect: it is challenging and provides immediate feedback - "like playing Atari."

COURSE DEVELOPERS INTERVIEW COMMENTS

- o Impressed with inputting and coding system.
 - o Had a sense of being able to influence training technology, not vice versa.
15. Did you have any problems with the hardware, i.e., downtime, maintainability, etc.?
- o No reliability problems created by system.
 - o Problems were self-imposed.
 - o System requires a specific location, electronic safeguard, and must be away from window - same safeguards as any computerized system.

APPENDIX C

TRAINER INTERVIEW COMMENTS

TRAINER INTERVIEW COMMENTS

(12 trainers were interviewed: 9 (.75) military and 3 (.25) civilian. Where an item was mentioned by more than one person, the frequency appears in parenthesis.)

1. What do you consider to be the best features of the IVCRTS? (26 Items)

- o Interactive/Instant feedback. (5) .20
- o Interesting/novel. (3) .12
- o User friendly. (3) .12
- o Competency representation. (3) .12
- o Convenience. (2) .08
- o Quality of film. (2) .08
- o Concentration on narrow learning objectives. (2) .08
- o Quality of graphics.
- o Realistic consulting activity.
- o Team training.
- o There were no useful features. (2) .08

2. How could the IVCRTS be improved? (29 Items)

- Competencies: (17 Items/.59)
 - o Better, more realistic coding. (8) .47
 - o Separate scenarios for "Name It" and "Find It." (3) .07
 - o Brief, concise definitions. (2) .07
 - o Limit number considered to twelve.
 - o Eliminate need to identify in prescribed order.
 - o Study material before training.
 - o Develop scenarios for specific competencies.

TRAINER INTERVIEW COMMENTS

- Hardware/Software: (10 Items/.34)
 - o Synchronize disks and tapes. (3) .30
 - o More responsive light pen. (3) .30
 - o Less equipment downtime. (2) .20
 - o Provide a way to correct accidental touch of screen.
 - o More detailed operating instructions.
 - Videotape: (2 Items/.07)
 - o More realistic/natural action.
 - o Better quality of film.
3. Which of your skills do you believe have been improved by the IVCRTS? (14 Items)
- o Awareness of competency-type behavior. (4) .36
 - o Using competency language.
 - o Using the hardware. (3) .21
 - o Taking tests. (2) .14
 - o Memory.
 - o None. (3) .21
4. In what ways have you used the skills trained by the IVCRTS in the classroom? (12 Items)
- o Have not used skills. (7) .58
 - o More sensitive to competency behaviors. (3) .25
 - o Communicate in competency language.
 - o Haven't been in classroom.

TRAINER INTERVIEW COMMENTS

5. Do you think the training provided by the IVCRTS has helped you do your job better or more easily? Why? (12 Items)
- o No. (10) .83
 - o Not sure.
 - o Somewhat, as a catalyst for discussion.
6. Do you think that it is less easy to train recognition of certain competencies on the IVCRTS than others? Which ones? (17 Items)
- Yes (7): .58
 - o Aware of self impact. (3) .18
 - o Low fear of rejection. (2) .12
 - o Concern for clarity. (2) .12
 - o Uses influence strategies. (2) .12
 - o Seeks multiple perspectives. (2) .12
 - o Problem focused procedures. (2) .12
 - o Self confidence.
 - o Perceptual objectivity.
 - o Identifies key themes
 - o Results orientation.
 - No. (4) .33
 - There was no training involved. (2) .17
7. Which competencies do you think were best displayed? Worst?
- Best: (17 Items)
 - o Seizes opportunities. (4) .24
 - o Results orientation. (3) .18

TRAINER INTERVIEW COMMENTS

- o Self confidence. (2) .12
- o Low fear of rejection. (2) .12
- o Concern for clarity.
- o Aware of self impact.
- o Causal thinking.
- o Identifies key themes.
- o Seeks user input.
- o Functional knowledge.
- Worst: (15 Items)
 - o Establishes professional rapport. (4) .27
 - o Self confidence. (2)* .13
 - o Causal thinking. (2) .13
 - o Concern for clarity.
 - o Identifies key themes.
 - o Perceptual objectivity.*
 - o Uses influence strategies.*
 - o Low fear of rejection.*
 - o Functional knowledge.*
 - o None were done well.
- Can't answer/don't remember. (5) .42

*These were difficult because they can be perceived as involving multiple competencies.

TRAINER INTERVIEW COMMENTS

8. Did you find the "Rundown" feature useful?

- No (6): .50
 - o It was of no use even when we thought we had problems. (4)
 - o It was not useful. (2)
- Yes (4): .33
 - o It was useful. (3)
 - o It was useful if I agreed with coding.
- Don't remember using it. (2) .17

9. Did you have any consistent problems with the IVCRTS?

- o Light pen performance. (7) .58
- o Equipment wouldn't function. (3) .25
- o Couldn't get profile scores. (2) .17
- o Hard to concentrate on everything, i.e., video/audio, narration, and competencies. (2) .17
- o "Rundown" wouldn't work.
- o Understanding definitions.
- o No problems.

10. Do you think the IVCRTS adequately assessed your level of competency recognition?

- o No. (5) .42
- o Yes, if one accepts the definitions and accuracy of coding. (5) .42
- o Only for those which were displayed well.
- o Not sure.

TRAINER INTERVIEW COMMENTS

11. How does the IVCRTS compare to other potential methods of training competency recognitions in terms of efficient use of your time?

- o Has good potential if improved on. (4) .33
- o It compares favorably with other methods. (3) .25
- o It is the best method. (3) .25
- o It is least desirable method.
- o Don't know.

12. What is your overall reaction to the IVCRTS?

Negative: (7) .58

- o It is unsatisfactory in terms of time invested and resulting payoff.
- o It was interesting, but was basically a guessing game.
- o Extreme disappointment.
- o It was fun, but didn't learn anything.
- o It takes a fairly easy task and makes it more difficult.
- o Negative; the way we were forced to use it within a prescribed time period did not help any.
- o It is spending a lot of money on something that will look good, but won't be very useful in the classroom.

Positive: (5) .42

- o Enormous potential; software preparation and validation will make all the difference.
- o A good means of instruction if combined with role playing and audiovisual feedback to the role player.
- o It is a step in the right direction; needs fine-tuning.
- o Enthusiastic; it has a lot of potential.
- o It has potential but the programming needs to be reviewed.

TRAINER INTERVIEW COMMENTS

13. What Army-wide applications do you see for this type of training system?

- o Not sure. (2)
- o With hard-data skill training, i.e., where there is a clear right or wrong answer, e.g., math, spelling, etc. (2)
- o If properly developed and functioning, it could be used to select people for jobs.
- o SQT training.
- o Training in the area of interpersonal skills, e.g., leadership, supervisory, counseling, communications.
- o Maintenance training, weapons training, and mechanical procedures.
- o Introducing new equipment.
- o Situational leadership training to NCOs and officers.
- o Unlimited potential for all types of training.
- o I'm afraid it will be applied Army-wide without being tested.

14. Can you recommend any other videotapes which could be coded for use at OEC&S?

- o No. (5) .42
- o No, tapes should be designed and developed especially for this purpose. (3)
- o Yes, the movie "12 O'Clock High" has been used in other places to teach leadership. (2)
- o Yes, the Situational Leadership tapes TDI (Training Development Institute) developed for the Drill Sergeants School.

TRAINER INTERVIEW COMMENTS

15. Any other comments?

- o The idea is good, but it needs more work.
- o They need to be more specific in their definitions of the competencies.
- o The concept is good and the system could be useful if the coding problems and machine operating problems are resolved.
- o I'm afraid it will be implemented before it is refined. They need to throw the competencies out and start all over.
- o I have serious reservations about buying it as it is. The evaluation should be done over a more reasonable time period and users should understand what the outcomes are and it needs to be phased into what's going on in the classroom.
- o Something went wrong with the coding - we were laughing in the aisles the first time through. There is little relationship between the competencies and the performance objectives for each segment of the course we teach.
- o My fear is that someone has already decided that we need this and we don't. It was simply a measure of my ability to play the game, i.e., associate competency language with behavior on the tape. It just doesn't have any applicability to what we're doing in the classroom.
- o I'd like to see the money spent on improved procedures for selecting our students.

16. How long have you been a trainer? Consultant?

(mean=1.9, var.=.63, SD=.79)

(mean=3.4, var.=1.5, SD=1.2)

Trainer

1) 0-1 yr (4)
 2) 1-2 yrs (5)
 3) 2-3 yrs (1)
 4) over 8 yrs (2)

Consultant

1) 0 (1)
 2) 1 yr (1)
 3) 1-2 yrs (5)
 4) 2-4 yrs (2)
 5) over 5 yrs (3)

APPENDIX D

MANAGEMENT INTERVIEW COMMENTS

MANAGEMENT INTERVIEW COMMENTS

(Director of Training, Deputy Director of Training, and Division Chief)

1. What changes have you observed in the trainers since the IVCRTS was implemented which you attribute to the IVCRTS?
 - o Probably none.
 - o None.
 - o Not sure - some may be taking more of a behavior focus on training.
2. Did you observe any problems with the implementation of the IVCRTS? Did you observe any resistance on the part of the trainers to the IVCRTS?
 - Implementation:
 - o The evaluation plan did not take into account the training load on our trainers. There was no cooperative effort between TD and DT on this.
 - o It was an additional requirement for our trainers.
 - o There was no problem.
 - o I hear there was a problem with the use of old film with the new technology.
 - Resistance:
 - o Our trainers didn't like having to devote so much time to the effort and they don't seem to like working with the hardware used on the system.
 - o Yes, mainly due to the total time demands on the trainers. We had to direct them to do it.
 - o Yes. They just wouldn't go over there and do it. This was partly because of competing demands on their time and partly because they just weren't motivated.
 - o We finally had to put out a schedule for them to follow, and they resented that.

MANAGEMENT INTERVIEW COMMENTS

3. Do you think that the trainers are better able to recognize competencies as a result of the IVCRTS? Why or why not?
 - o I do not have any facts on which to base a statement that they have. I just assume they are.
 - o They all saw the same thing, so they should have a common language.
 - o I'm seeing a little more use of behavioral terms and competency language.
 - o I have seen no demonstration of improvement. I would think that they are better simply because they spent so much time doing it.
4. What do you consider to be the best features of the IVCRTS?
 - o Providing a common base of competencies for all trainers to work from.
 - o This will help to standardize the grading criteria.
 - o It is available at the user's convenience.
 - o It is a good way to get new trainers involved in what we're doing.
 - o It is a good way to sharpen skills.
 - o It allows us to put a list of competencies on the machine and then have the trainers recognize them.
 - o It helps us further refine or define what a competency looks like and to develop a common definition of what a competency is.
 - o It provides a common understanding.
5. What do you consider to be the worst features of the IVCRTS?
 - o I don't know.
 - o The time required to use the system.
 - o The frustration generated when a person misses on an identification.

MANAGEMENT INTERVIEW COMMENTS

- o Not knowing if they are learning to recognize competencies or if they are simply learning how to beat the machine.
 - o The issue of whether or not the competencies were correctly coded.
6. In your opinion, has the IVCRTS successfully contributed to training effectiveness? How?
- o I don't think it has yet. I haven't seen any difference in the way our trainers are acting or talking.
 - o I think it's too soon to tell. We'll have an idea when we notice trainers thinking about the competencies necessary to meet a training objective.
 - o I can't answer that based on actual observations. I think it probably has but I don't know how to measure it.
7. Would you like to see interactive video training expanded to other uses within OEC&S?
- o Yes, I sure would - to use to bring on new instructors and to have segments for each block of instruction.
 - o Yes. First, everybody on the staff/faculty should go through it so we have a common base; then it should be available to students in a learning center environment.
 - o Yes, if it proves beneficial. It could be used as an instructional aid with students, and it would be valuable for new instructors to go through it.
8. What other Army-wide applications do you see for this type of training system?
- o Any of the service schools could adapt it as an instructional aid and as a self-paced learning program.
 - o It could be used by OEs in the field to develop confidence in their skills and to provide them refresher training.
 - o Virtually any training activity throughout the Army.

MANAGEMENT INTERVIEW COMMENTS

9. Can you recommend any other videotapes which could be coded for use at OEC&S?
- o No (2).
 - o I'd like to see tapes developed to show first the right display of competencies, then show several incorrect demonstrations.
10. Do you have any other comments that may assist in this evaluation?
- o I would keep the system. You need to prove it doesn't have value rather than trying to prove that it does.
 - o The system has utility. If we keep it, I'll see that my people use it.
 - o Some of the trainers were very frustrated in that they were confident they knew the competencies, but then they had a difficult time with the machine - it was a threat to them.

APPENDIX E

PROBLEM SURVEY LOG

Page E-2: All Data

Page E-6: One-Time Use Data

Page E-8: Multiple Use Data

PROBLEM SURVEY/LOG

(24 instruments were received. The percentage and frequency of responses to each item are shown.)

In order to help us evaluate the Interactive Video Competency Recognition Training System (IVCRTS), you will be asked to fill out this sheet at specific times. You may also voluntarily fill it out any time you have a problem.

Date: Feb (5)
Mar (18)
Undated (1)

1. How many times (including this one) have you used the IVCRTS? (N=20)

1 time: .65 (13)	5 times: .05 (1)
3 times: .05 (1)	6 times: .10 (2)
4 times: .15 (3)	No Response: 4

The following questions refer to your use of the IVCRTS this time.

2. Please check each of the features you used: (N=22)

Introduction to OE model	<u>.32 (7)</u>
"Name It"	<u>.86 (19)</u>
"Find It"	<u>.64 (14)</u>
Tutor	<u>.09 (2)</u>
Reliability scores	<u>.73 (16)</u>
Rundown	<u>.55 (12)</u>

Please place a checkmark () in the first column to indicate whether you encountered any of the following problems. In the second column, indicate how many times it occurred: (N=17 or 71 percent)

()

How often?

3. Unsure of what to be done next? N=9 (.53)

1 time: 7 3 times: 1

4. Touched the panel and nothing happened? N=14 (.82)

Infrequent: 1	Lots: 1
15 times: 1	10 times: 1
Every 3rd time: 1	5 times: 1
3 times: 1	2 times: 1

5. Sure you gave right answer but it differed from coding? N=15 (.88)

Lots: 1	Several: 1
5 times: 1	4 times: 2
3 times: 4	2 times: 2
	1 time: 2

PROBLEM SURVEY/LOG

6. Terminology confusing? N=0
7. Needed to ask for assistance? N=9 (.53)
Occasionally: 1 2 times: 3
3 times: 1 1 time: 4
8. Trouble gaining access (i.e., due to location, hours, etc.)? N=2 (.12)
1 time: 1 2 times: 1
9. If you were told you were incorrect in recognizing a competency, were you satisfied as to why? (N=23)
Yes .04 (1) Somewhat .39 (9) No .57 (13)
10. Describe any further problems, concerns, etc. concerning the IVCRTS on the back of this sheet.

Fourteen individuals (.58) responded to this item, providing 42 separate comments:

- 22 comments (.52) indicated disagreement with the competency codings.
 - o "Concern for Clarity" should be:
 - "Results Orientation." (2)
 - "Seeks User Input" or "Uses Influence Strategies."
 - o "Self Confidence" should be "Concern for Clarity."
 - o "Communicates Clearly" was poorly done/had no supporting behavior. (2)
 - o "Identifies Key Themes":
 - Had no observable behavior
 - Seemed "Causal Thinking."
 - o "Seeks User Input" is same as "Results Orientation." (2)
 - o "Problem Focused Behavior":
 - Should be "Self Confidence."
 - Should be "Flexibility of Consultant."

PROBLEM SURVEY/LOG

- o "Functional Knowledge" appeared to be "Results Orientation."
- o "Low Fear of Rejection" appeared to be "Results Orientation."
- o "Functional Knowledge" had no observable behavior.
- o "Aware of Self Impact" is a problem.
- o "Uses Influence Strategies" is incorrectly coded.
- o Disagreement with coding of competencies:
 - Too often behaviors involve more than one competency.
 - There are too many "both/and" displays where "this or that" answers are expected.
 - The Planning segment was the least credible.
 - Disagree with overlapping competencies.
 - Not sure I'm learning which competency is right or appropriate.
- 12 comments (.29) related to equipment/mechanical problems:
 - o The pen light did not work/malfunctioned. (3)
 - o Machine did not play entire tape - called for help.
 - o I needed a second session and more supervision to understand how to use equipment.
 - o We could not deal with machine malfunctions without assistance.
 - o During the "Evaluation" segment of "Find It," I missed two of nine competencies, but the machine did not score it.
 - o Machine twice failed to stop on command.
 - o The "Run Down" feature did not work.
 - o In "Tutor," it told me I failed to detect a competency when I actually identified a competency as being something other than what it was coded.
 - o Machine locked on "RIGHT" at end of "Planning" tape.
 - o Machine breakdowns were a problem.
 - o Writing on screen was hard to read.

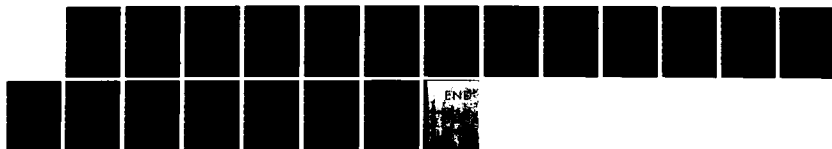
AD-A133 052

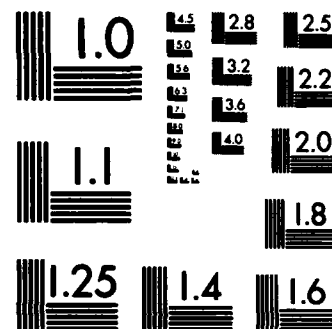
EVALUATION RESULTS FOR THE INTERACTIVE VIDEO COMPETENCY 2/2
RECOGNITION SYSTEM(U) ARMY TRAINING DEVELOPMENTS INST
FORT MONROE VA R AVANT ET AL. 30 MAY 83 TDI-TR-83-4

UNCLASSIFIED

F/G 5/9

NL





PROBLEM SURVEY/LOG

- 7 comments (.17) pertained to the training process/method:
 - o At times it seems the machine emphasized "process" data when "content" data was being presented and vice versa.
 - o I was confused as to who was demonstrating the competencies, i.e., the client, the consultant, or the narrator.
 - o The competencies should be displayed in the order in which they would appear when following the normal A-P-I-E order of consulting activities.
 - o With the "Planning" tape, we should have done "Name It" before doing "Find It."
 - o The system can be subverted if one focuses on score rather than on learning.
 - o This requirement caused me to lose 3½ hours of time I needed for another project.
 - o Army money should be spent on something other than this system.

PROBLEM SURVEY/LOG

(17 respondents indicating one-time use. Where no entry was made to item one, the individual was assumed to be a one-time user.)

In order to help us evaluate the Interactive Video Competency Recognition Training System (IVCRTS), you will be asked to fill out this sheet at specific times. You may also voluntarily fill it out any time you have a problem.

Feb (5)
Mar (11)
Date: Undated (1)

1. How many times (including this one) have you used the IVCRTS? (N=17)

1 time: 13
No indication: 4

The following questions refer to your use of the IVCRTS this time.

2. Please check each of the features you used: (N=15)

Introduction to OE model	<u>.40 (6)</u>
"Name It"	<u>.93 (14)</u>
"Find It"	<u>.47 (7)</u>
Tutor	<u>.07 (1)</u>
Reliability scores	<u>.87 (13)</u>
Rundown	<u>.67 (10)</u>

Please place a checkmark () in the first column to indicate whether you encountered any of the following problems. In the second column, indicate how many times it occurred: (N=11 or 65 percent)

()

How often?

3. Unsure of what to be done next? .55 (6)

1 time: 3 3 times: 1

4. Touched the panel and nothing happened? .82 (9)

2 times: 1 10 times: 1
1 of 3 times: 1 15 times: 2

5. Sure you gave right answer but it differed from coding? .91 (10)

1 time: 2 4 times: 2
2 times: 1 5 times: 2
3 times: 3 several: 1

6. Terminology confusing? .00

PROBLEM SURVEY/LOG

7. Needed to ask for assistance? .45 (5)
- 1 time: 2 3 times: 1
2 times: 2
8. Trouble gaining access (i.e.,
due to location, hours, etc.)? .09 (1)
9. If you were told you were incorrect in recognizing a competency, were you satisfied
as to why? (N=16)
- Yes _____ Somewhat .38 (6) No .63 (10)
10. Describe any further problems, concerns, etc. concerning the IVCRTS on the back of
this sheet.

PROBLEM SURVEY/LOG

(7 respondents indicating multiple use, i.e., three or more itmes.)

In order to help us evaluate the Interactive Video Competency Recognition Training System (IVCRTS), you will be asked to fill out this sheet at specific times. You may also voluntarily fill it out any time you have a problem.

Date: Mar (7)

1. How many times (including this one) have you used the IVCRTS? (N=7)

3 times:	1	5 times:	1
4 times:	3	6 times:	2

The following questions refer to your use of the IVCRTS this time.

2. Please check each of the features you used: (N=7)

Introduction to OE model	<u>.00 (0)</u>
"Name It"	<u>.57 (4)</u>
"Find It"	<u>1.0 (7)</u>
Tutor	<u>.14 (1)</u>
Reliability scores	<u>.29 (2)</u>
Rundown	<u>.29 (2)</u>

Please place a checkmark () in the first column to indicate whether you enountered any of the following problems. In the second column, indicate how many times it occurred: (N=16 or 86 percent)

() How often?

- | | | |
|--|----------------|---------------------------------|
| 3. Unsure of what to be done next? | <u>.33 (2)</u> | 1 time: 2 |
| 4. Touched the panel and nothing happened? | <u>.83 (5)</u> | |
| | | 1 time: 1 5 or 6 times:: 1 |
| | | 3 times: 1 Lots: 1 |
| 5. Sure you gave right answer but it differed from coding? | <u>.67 (4)</u> | |
| | | 3 times: 1 Lots: 1 |
| 6. Terminology confusing? | <u>.00</u> | |

PROBLEM SURVEY/LOG

7. Needed to ask for assistance? .50 (3)
1 time: 2 Occasionally: 1
8. Trouble gaining access (i.e.,
due to location, hours, etc.)? .17 (1)
2 times: 1
9. If you were told you were incorrect in recognizing a competency, were you satisfied
as to why? (N=7)
Yes .14 (1) Somewhat .43 (3) No .43 (3)
10. Describe any further problems, concerns, etc. concerning the IVCRTS on the back of
this sheet.

APPENDIX F

IVCRTS EVALUATION QUESTIONNAIRE

Page F-2:	All Data
Page F-6:	Military Members
Page F-9:	Civilian Members
Page F-12:	Experienced Trainers/Consultants

IVCRTS EVALUATION QUESTIONNAIRE

(24 instruments were distributed. 16 completed instruments were received. The percentage and frequency of responses to each item are as shown.)

1. How did use of the IVCRTS influence your confidence in recognizing the competencies? (mean=3.5, var.=.66, SD=.82)

<u>.06 (1)</u>	5)	Greatly increased my confidence.
<u>.50 (8)</u>	4)	Increased my confidence.
<u>.31 (5)</u>	3)	Did not change my confidence.
<u>.13 (2)</u>	2)	Decreased my confidence.
<u>.00 (0)</u>	1)	Greatly decreased my confidence.

2. How interested were you while using the IVCRTS?(mean=3.5, var.=1.5, SD=1.2)

<u>.19 (3)</u>	5)	Very interested.
<u>.44 (7)</u>	4)	Interested.
<u>.13 (2)</u>	3)	Neutral.
<u>.19 (3)</u>	2)	Bored.
<u>.06 (1)</u>	1)	Very bored.

3. How much of what you learned using the IVCRTS could be applied in the classroom? (mean=3., var.=1.5, SD=1.2)

<u>.13 (2)</u>	5)	Almost all of what I learned.
<u>.19 (3)</u>	4)	Most of what I learned.
<u>.38 (6)</u>	3)	Not sure.
<u>.19 (3)</u>	2)	Little of what I learned.
<u>.13 (2)</u>	1)	None of what I learned.

4. How effective do you think the IVCRTS is in training competency recognition? (mean=3.9, var.=1.6, SD=1.3)

<u>.38 (6)</u>	5)	Very effective.
<u>.38 (6)</u>	4)	Somewhat effective.
<u>.06 (1)</u>	3)	Undecided.
<u>.13 (2)</u>	2)	Somewhat ineffective.
<u>.06 (1)</u>	1)	Very ineffective.

5. Would you like to see IVCRTS-type technology used for additional training (for students or trainers) at OEC&S? (mean=3.8, var.=2.2, SD=1.5)

<u>.38 (6)</u>	5)	Definitely.
<u>.38 (6)</u>	4)	Probably.
<u>.06 (1)</u>	3)	Undecided.
<u>.00 (0)</u>	2)	Not particularly.
<u>.19 (3)</u>	1)	Definitely no.

IVCRTS EVALUATION QUESTIONNAIRE

6. How accurately do you think the videotapes simulate the OE Consultant's job? (mean=3.3, var.=1.9, SD=1.4)

<u>.13 (2)</u>	1) Very poorly.
<u>.25 (4)</u>	2) Not too well.
<u>.06 (1)</u>	3) Undecided.
<u>.38 (6)</u>	4) Okay.
<u>.19 (3)</u>	5) Very well.

7. Did you have any problem being able to use the IVCRTS when you wanted to (i.e., due to location, hours available, etc.)? (mean=2.9, var.=.12, SD=.34)

<u>.88 (14)</u>	3) Never.
<u>.13 (2)</u>	2) Sometimes.
<u>.00 (0)</u>	1) Almost always.

8. How adequate is the score display provided by the IVCRTS regarding your performance? (mean=2.7, var.=.90, SD=.95)

<u>.19 (3)</u>	4) Superb.
<u>.44 (7)</u>	3) Good.
<u>.25 (4)</u>	2) Adequate.
<u>.13 (2)</u>	1) Poor.

9. Would you recommend using IVCRTS technology to a friend who was looking for a way to train recognition skills? (mean=3.0, var.=1.2, SD=1.1)

<u>.44 (7)</u>	4) Yes, very highly.
<u>.25 (4)</u>	3) Yes, with a few reservations.
<u>.19 (3)</u>	2) Maybe, depending on certain factors.
<u>.13 (2)</u>	1) No, not at all.

10. How much more frequently do you use competency "language" now compared to before you used the IVCRTS? (mean=1.6, var.=.53, SD=.73)

<u>.56 (9)</u>	1) Not at all.
<u>.31 (5)</u>	2) Slightly more frequently.
<u>.13 (2)</u>	3) Much more frequently.

IVCRTS EVALUATION QUESTIONNAIRE

11. There are many potential methods of training competency recognition. In your opinion, how would each of the following methods compare to the IVCRTS in terms of effectiveness. Place a checkmark in the appropriate column.

	More Effective than IVCRTS	Less Effective than IVCRTS
Role playing	<u>.73 (11)</u>	<u>.27 (4)</u>
Case study	<u>.63 (10)</u>	<u>.38 (6)</u>
Written programmed learning	<u>.19 (3)</u>	<u>.81 (13)</u>
Self study tapes	<u>.20 (3)</u>	<u>.80 (12)</u>
TV tapes	<u>.20 (3)</u>	<u>.80 (12)</u>
Structured experiences	<u>.75 (12)</u>	<u>.25 (4)</u>

12. How long have you been a trainer at OEC&S? (mean=2.7, var.=1.8, SD=1.3)

<u>.25 (4)</u>	1) No experience
<u>.13 (2)</u>	2) Less than one year
<u>.25 (4)</u>	3) 1-2 years
<u>.25 (4)</u>	4) 2-3 years
<u>.06 (1)</u>	5) Over 4 years

13. Are you:

3 Civilian 13 Military

14. Have you had experience doing O.E./O.D. consulting?
If so, how long? (mean=3.8, var.=3.4, SD=1.8)

<u>.19 (3)</u>	1) No experience
<u>.06 (1)</u>	2) Little experience
<u>.19 (3)</u>	3) 1-2 years
<u>.19 (3)</u>	4) 2-3 years
<u>.33 (2)</u>	5) 3-4 years
<u>.25 (4)</u>	6) Over 5 years

IVCRTS EVALUATION QUESTIONNAIRE

15. Please use this space to add any further comments, issues, or concerns which you have regarding the IVCRTS:

Eight individuals (.50) responded to this item, providing 15 separate comments:

- 9 comments (.60) were related to the perception that more work is needed to improve the system.
 - o Great concept - the programming needs more work. (2)
 - o Needs expansion to provide more situations leading to successful versus unsuccessful student results.
 - o Good tool but needs to be supplemented with other techniques. (2)
 - o Accuracy of videotape simulation could be improved.
 - o Would not recommend it in its present state.
 - o Need to invest in more dependable equipment.
 - o Was disappointed that ITS couldn't make all 23 software changes requested.
- 3 comments (.20) expressed concern with the coding of the competencies:
 - o Need to expand segments as they relate to a given competency.
 - o The coding was conflicting at times.
 - o In several places the actor demonstrated competencies other than those coded as the right answer.
- 3 comments (.20) expressed doubt about the system as a training mechanism:
 - o Recognizing a competency does nothing to help me teach a student how to behave that way.
 - o Don't spend on it; it's a gadget.
 - o Too expensive, there's too much hardware/software dependency.

IVCRTS EVALUATION QUESTIONNAIRE

(13 Military Members)

1. How did use of the IVCRTS influence your confidence in recognizing the competencies? (mean=3.6, var.=.59, SD=.77)

<u>.08 (1)</u>	5) Greatly increased my confidence.
<u>.54 (7)</u>	4) Increased my confidence.
<u>.31 (4)</u>	3) Did not change my confidence.
<u>.08 (1)</u>	2) Decreased my confidence.
<u>.00 (0)</u>	1) Greatly decreased my confidence.

2. How interested were you while using the IVCRTS?(mean=3.6, var.=1.6, SD=1.3)

<u>.23 (3)</u>	5) Very interested.
<u>.46 (6)</u>	4) Interested.
<u>.06 (1)</u>	3) Neutral.
<u>.15 (2)</u>	2) Bored.
<u>.08 (1)</u>	1) Very bored.

3. How much of what you learned using the IVCRTS could be applied in the classroom? (mean=3.2, var.=1.5, SD=1.2)

<u>.15 (2)</u>	5) Almost all of what I learned.
<u>.23 (3)</u>	4) Most of what I learned.
<u>.31 (4)</u>	3) Not sure.
<u>.23 (3)</u>	2) Little of what I learned.
<u>.06 (1)</u>	1) None of what I learned.

4. How effective do you think the IVCRTS is in training competency recognition? (mean=3.9, var.=1.6, SD=1.3)

<u>.38 (5)</u>	5) Very effective.
<u>.38 (5)</u>	4) Somewhat effective.
<u>.08 (1)</u>	3) Undecided.
<u>.08 (1)</u>	2) Somewhat ineffective.
<u>.08 (1)</u>	1) Very ineffective.

5. Would you like to see IVCRTS-type technology used for additional training (for students or trainers) at OEC&S? (mean=3.8, var.=2., SD=1.4)

<u>.38 (5)</u>	5) Definitely.
<u>.38 (5)</u>	4) Probably.
<u>.08 (1)</u>	3) Undecided.
<u>.00 (0)</u>	2) Not particularly.
<u>.15 (2)</u>	1) Definitely no.

IVCRTS EVALUATION QUESTIONNAIRE

6. How accurately do you think the videotapes simulate the OE Consultant's job? (mean=3.2, var.=2.2, SD=1.5)

<u>.15 (2)</u>	1)	Very poorly.
<u>.23 (3)</u>	2)	Not too well.
<u>.08 (1)</u>	3)	Undecided.
<u>.31 (4)</u>	4)	Okay.
<u>.23 (3)</u>	5)	Very well.

7. Did you have any problem being able to use the IVCRTS when you wanted to (i.e., due to location, hours available, etc.)? (mean=2.8, var.=.14, SD=.36)

<u>.85 (11)</u>	3)	Never.
<u>.13 (2)</u>	2)	Sometimes.
<u>.00 (0)</u>	1)	Almost always.

8. How adequate is the score display provided by the IVCRTS regarding your performance? (mean=2.8, var.=.86, SD=.93)

<u>.18 (3)</u>	4)	Superb.
<u>.38 (5)</u>	3)	Good.
<u>.31 (4)</u>	2)	Adequate.
<u>.08 (1)</u>	1)	Poor.

9. Would you recommend using IVCRTS technology to a friend who was looking for a way to train recognition skills? (mean=3.0, var.=1.3, SD=1.2)

<u>.46 (6)</u>	4)	Yes, very highly.
<u>.23 (3)</u>	3)	Yes, with a few reservations.
<u>.15 (2)</u>	2)	Maybe, depending on certain factors.
<u>.15 (2)</u>	1)	No, not at all.

10. How much more frequently do you use competency "language" now compared to before you used the IVCRTS? (mean=1.6, var.=.59, SD=.77)

<u>.54 (7)</u>	1)	Not at all.
<u>.31 (4)</u>	2)	Slightly more frequently.
<u>.15 (2)</u>	3)	Much more frequently.

IVCRTS EVALUATION QUESTIONNAIRE

11. There are many potential methods of training competency recognition. In your opinion, how would each of the following methods compare to the IVCRTS in terms of effectiveness. Place a checkmark in the appropriate column.

	<u>More Effective than IVCRTS</u>	<u>Less Effective than IVCRTS</u>
Role playing	<u>.67 (8)</u>	<u>.33 (4)</u>
Case study	<u>.62 (8)</u>	<u>.38 (5)</u>
Written programmed learning	<u>.02 (3)</u>	<u>.77 (10)</u>
Self study tapes	<u>.25 (3)</u>	<u>.75 (9)</u>
TV tapes	<u>.25 (3)</u>	<u>.75 (9)</u>
Structured experiences	<u>.69 (9)</u>	<u>.31 (4)</u>

12. How long have you been a trainer at OEC&S? (mean=2.5, var.=1.4, SD=1.2)

<u>.30 (4)</u>	1) No experience
<u>.15 (2)</u>	2) Less than one year
<u>.31 (4)</u>	3) 1-2 years
<u>.23 (3)</u>	4) 2-3 years
<u>.00 (0)</u>	5) Over 4 years

13. Are you:

0 Civilian 13 Military

14. Have you had experience doing O.E./O.D. consulting?
If so, how long? (mean=3.3, var.=3.6, SD=1.9)

<u>.31 (4)</u>	1) No experience
<u>.00 (0)</u>	2) Little experience
<u>.23 (3)</u>	3) 1-2 years
<u>.15 (2)</u>	4) 2-3 years
<u>.15 (2)</u>	5) 3-4 years
<u>.15 (2)</u>	6) Over 5 years

IVCRTS EVALUATION QUESTIONNAIRE

(3 Civilian Members)

1. How did use of the IVCRTS influence your confidence in recognizing the competencies? (mean=3, var.=1, SD=1)

<u>.00 (0)</u>	5)	Greatly increased my confidence.
<u>.33 (1)</u>	4)	Increased my confidence.
<u>.33 (1)</u>	3)	Did not change my confidence.
<u>.33 (1)</u>	2)	Decreased my confidence.
<u>.00 (0)</u>	1)	Greatly decreased my confidence.

2. How interested were you while using the IVCRTS? (mean=3, var.=1, SD=1)

<u>.00 (0)</u>	5)	Very interested.
<u>.33 (1)</u>	4)	Interested.
<u>.33 (1)</u>	3)	Neutral.
<u>.33 (1)</u>	2)	Bored.
<u>.00 (0)</u>	1)	Very bored.

3. How much of what you learned using the IVCRTS could be applied in the classroom? (mean=2.3, var.=1.3, SD=1.2)

<u>.00 (0)</u>	5)	Almost all of what I learned.
<u>.00 (0)</u>	4)	Most of what I learned.
<u>.67 (2)</u>	3)	Not sure.
<u>.00 (0)</u>	2)	Little of what I learned.
<u>.33 (1)</u>	1)	None of what I learned.

4. How effective do you think the IVCRTS is in training competency recognition? (mean=3.6, var.=2.3, SD=1.5)

<u>.33 (1)</u>	5)	Very effective.
<u>.33 (1)</u>	4)	Somewhat effective.
<u>.00 (0)</u>	3)	Undecided.
<u>.33 (1)</u>	2)	Somewhat ineffective.
<u>.00 (0)</u>	1)	Very ineffective.

5. Would you like to see IVCRTS-type technology used for additional training (for students or trainers) at OEC&S? (mean=3.3, var.=4.3, SD=2.1)

<u>.33 (1)</u>	5)	Definitely.
<u>.33 (1)</u>	4)	Probably.
<u>.00 (0)</u>	3)	Undecided.
<u>.00 (0)</u>	2)	Not particularly.
<u>.33 (1)</u>	1)	Definitely no.

IVCRTS EVALUATION QUESTIONNAIRE

6. How accurately do you think the videotapes simulate the OE Consultant's job? (mean=3.3, var.=1.3, SD=1.2)

<u>.00 (0)</u>	1)	Very poorly.
<u>.33 (1)</u>	2)	Not too well.
<u>.00 (0)</u>	3)	Undecided.
<u>.67 (2)</u>	4)	Okay.
<u>.00 (0)</u>	5)	Very well.

7. Did you have any problem being able to use the IVCRTS when you wanted to (i.e., due to location, hours available, etc.)? (mean=3, var.=0, SD=0)

<u>1.0 (3)</u>	3)	Never.
<u>.00 (0)</u>	2)	Sometimes.
<u>.00 (0)</u>	1)	Almost always.

8. How adequate is the score display provided by the IVCRTS regarding your performance? (mean=2.3, var.=1.3, SD=1.2)

<u>.00 (0)</u>	4)	Superb.
<u>.67 (2)</u>	3)	Good.
<u>.00 (0)</u>	2)	Adequate.
<u>.33 (1)</u>	1)	Poor.

9. Would you recommend using IVCRTS technology to a friend who was looking for a way to train recognition skills? (mean=3, var.=1, SD=1)

<u>.33 (1)</u>	4)	Yes, very highly.
<u>.33 (1)</u>	3)	Yes, with a few reservations.
<u>.33 (1)</u>	2)	Maybe, depending on certain factors.
<u>.00 (0)</u>	1)	No, not at all.

10. How much more frequently do you use competency "language" now compared to before you used the IVCRTS? (mean=1.3, var.=.33, SD=.58)

<u>.67 (2)</u>	1)	Not at all.
<u>.33 (1)</u>	2)	Slightly more frequently.
<u>.00 (0)</u>	3)	Much more frequently.

IVCRTS EVALUATION QUESTIONNAIRE

11. There are many potential methods of training competency recognition. In your opinion, how would each of the following methods compare to the IVCRTS in terms of effectiveness. Place a checkmark in the appropriate column.

	<u>More Effective than IVCRTS</u>	<u>Less Effective than IVCRTS</u>
Role playing	<u>1.0 (3)</u>	<u>.00 (0)</u>
Case study	<u>.67 (2)</u>	<u>.33 (1)</u>
Written programmed learning	<u>.00 (0)</u>	<u>1.0 (3)</u>
Self study tapes	<u>.00 (0)</u>	<u>1.0 (3)</u>
TV tapes	<u>.00 (0)</u>	<u>1.0 (3)</u>
Structured experiences	<u>1.0 (3)</u>	<u>.00 (0)</u>

12. How long have you been a trainer at OEC&S? (mean=3.3, var.=4.3, SD=2.1)

<u>.33 (1)</u>	1) No experience
<u>.00 (0)</u>	2) Less than 1 year
<u>.00 (0)</u>	3) 1-2 years
<u>.33 (1)</u>	4) 2-3 years
<u>.33 (1)</u>	5) Over 4 years

13. Are you:

 3 Civilian 0 Military

14. Have you had experience doing O.E./O.D. consulting? If so, how long?
(mean=5.7, var.=.33, SD=.58)

<u>.00 (0)</u>	1) No experience
<u>.00 (0)</u>	2) Little experience
<u>.00 (0)</u>	3) 1-2 years
<u>.00 (0)</u>	4) 2-3 years
<u>.33 (1)</u>	5) 3-4 years
<u>.67 (2)</u>	6) Over 5 years

IVCRTS EVALUATION QUESTIONNAIRE

(7 respondents with one year or more experience as both a trainer and a consultant.)

1. How did use of the IVCRTS influence your confidence in recognizing the competencies? (mean=3.4, var.=.95, SD=.96)

<u>.14 (1)</u>	5) Greatly increased my confidence.
<u>.29 (2)</u>	4) Increased my confidence.
<u>.43 (3)</u>	3) Did not change my confidence.
<u>.14 (1)</u>	2) Decreased my confidence.
<u>.00 (0)</u>	1) Greatly decreased my confidence.

2. How interested were you while using the IVCRTS? (mean=3.4, var.=1.6, SD=1.3)

<u>.29 (2)</u>	5) Very interested.
<u>.14 (1)</u>	4) Interested.
<u>.29 (2)</u>	3) Neutral.
<u>.29 (2)</u>	2) Bored.
<u>.00 (0)</u>	1) Very bored.

3. How much of what you learned using the IVCRTS could be applied in the classroom? (mean=3., var.=2., SD=1.4)

<u>.14 (1)</u>	5) Almost all of what I learned.
<u>.29 (2)</u>	4) Most of what I learned.
<u>.14 (1)</u>	3) Not sure.
<u>.29 (2)</u>	2) Little of what I learned.
<u>.14 (1)</u>	1) None of what I learned.

4. How effective do you think the IVCRTS is in training competency recognition? (mean=3.7, var.=2., SD=1.4)

<u>.43 (3)</u>	5) Very effective.
<u>.14 (1)</u>	4) Somewhat effective.
<u>.14 (1)</u>	3) Undecided.
<u>.29 (2)</u>	2) Somewhat ineffective.
<u>.00 (0)</u>	1) Very ineffective.

5. Would you like to see IVCRTS-type technology used for additional training (for students or trainers) at OEC&S? (mean=3.4, var.=3., SD=1.7)

<u>.29 (2)</u>	5) Definitely.
<u>.43 (3)</u>	4) Probably.
<u>.00 (0)</u>	3) Undecided.
<u>.00 (0)</u>	2) Not particularly.
<u>.29 (2)</u>	1) Definitely no.

IVCRTS EVALUATION QUESTIONNAIRE

6. How accurately do you think the videotapes simulate the OE Consultant's job? (mean=3.1, var.=2.1, SD=1.5)

<u>.14 (1)</u>	1) Very poorly.
<u>.29 (2)</u>	2) Not too well.
<u>.00 (0)</u>	3) Undecided.
<u>.43 (3)</u>	4) Okay.
<u>.14 (1)</u>	5) Very well.

7. Did you have any problem being able to use the IVCRTS when you wanted to (i.e., due to location, hours available, etc.)? (mean=2.9, var.=.14, SD=.38)

<u>.86 (6)</u>	3) Never.
<u>.14 (1)</u>	2) Sometimes.
<u>.00 (0)</u>	1) Almost always.

8. How adequate is the score display provided by the IVCRTS regarding your performance? (mean=2.7, var.=1.2, SD=1.1)

<u>.29 (2)</u>	4) Superb.
<u>.29 (2)</u>	3) Good.
<u>.29 (2)</u>	2) Adequate.
<u>.14 (1)</u>	1) Poor.

9. Would you recommend using IVCRTS technology to a friend who was looking for a way to train recognition skills? (mean=2.7, var.=1.6, SD=1.3)

<u>.29 (2)</u>	4) Yes, very highly.
<u>.43 (3)</u>	3) Yes, with a few reservations.
<u>.00 (0)</u>	2) Maybe, depending on certain factors.
<u>.29 (2)</u>	1) No, not at all.

10. How much more frequently do you use competency "language" now compared to before you used the IVCRTS? (mean=1.6, var.=.62, SD=.79)

<u>.57 (4)</u>	1) Not at all.
<u>.29 (2)</u>	2) Slightly more frequently.
<u>.14 (1)</u>	3) Much more frequently.

IVCRTS EVALUATION QUESTIONNAIRE

11. There are many potential methods of training competency recognition. In your opinion, how would each of the following methods compare to the IVCRTS in terms of effectiveness. Place a checkmark in the appropriate column.

	More Effective than IVCRTS	Less Effective than IVCRTS
Role playing	<u>.67 (4)</u>	<u>.33 (2)</u>
Case study	<u>.67 (4)</u>	<u>.33 (2)</u>
Written programmed learning	<u>.14 (1)</u>	<u>.86 (6)</u>
Self study tapes	<u>.29 (2)</u>	<u>.71 (5)</u>
TV tapes	<u>.29 (2)</u>	<u>.71 (5)</u>
Structured experiences	<u>.71 (5)</u>	<u>.29 (2)</u>

12. How long have you been a trainer at OEC&S? (mean=2.1, var.=.48, SD=.69)

<u>.14 (1)</u>	1) 1-2 years
<u>.56 (4)</u>	2) 2-3 years
<u>.29 (2)</u>	3) Over 4 years

13. Are you:

2 Civilian 5 Military

14. Have you had experience doing O.E./O.D. consulting? If so, how long? (mean=2.4, var.=.62, SD=.79)

<u>.14 (1)</u>	1) More than 1 year
<u>.29 (2)</u>	2) More than 2 years
<u>.56 (4)</u>	3) More than 3 years

15. Please use this space to add any further comments, issues, or concerns which you have regarding the IVCRTS:

- Respondent 1:
- ☐ Don't spend on it; it's a gadget.
 - ☐ It's too expensive. There's too much software/hardware dependency.
 - ☐ Recognizing a competency does nothing to help me teach a student how to behave that way.
- Respondent 2:
- ☐ In several places the actor demonstrated competencies other than those coded as the right answer.
- Respondent 3:
- ☐ Great concept; the programming needs more work.
- Respondent 4:
- ☐ Would not recommend it in its present state.
- Respondent 5:
- ☐ A sound system for training. It eliminates trainer biases for critical instruction.

