DOCUMENT RESUME

ED 212 898                                                    CE 031 525

AUTHOR          Freda, Jon S.; Shields, Joyce L.
TITLE           An Investigation of the Adoption Process in Training
                Technology Transfer.
INSTITUTION     Army Research Inst. for the Behavioral and Social
                Sciences, Alexandria, Va.
REPORT NO       ARI-RR-448
PUB DATE        Jun 80
NOTE            62p.

EDRS PRICE      MF01/PC03 Plus Postage.
DESCRIPTORS     *Adoption (Ideas); Attitude Change; *Attitudes;
                *Educational Research; *Information Sources; Military
                Training; Questionnaires; Research Utilization;
                *Technology Transfer; Transfer of Training; *Use
                Studies
IDENTIFIERS     Army; Training Extension Course

ABSTRACT
                A study investigated the influence of users'
attitudes and sources of information on their adoption of a training
research project. A two-part questionnaire was administered to 111
Army participants attending TRADOC/FORSCOM Training and Evaluation
Workshops to gather attitudinal and usage information relating to the
adoption of the Training Extension Course (TEC) program by unit
training managers. Sources of TEC-related information were matched
with the awareness, acceptance, and utilization stages of the
adoption process to gain an understanding of the dissemination
activity within training technology transfer. Two major findings
emerged. The acceptance (persuade stage) of the TEC program was
influenced primarily by internal sources of information, while the
initial awareness (inform stage) and later utilization of TEC were
influenced by internal and external sources. Prior familiarity with
TEC predicted TEC usage better than did attitudinal measures (for
this particular sample). However, familiarity alone did not insure
extensive TEC usage, since about half of those previously familiar
with TEC did not use it. Findings suggested that periodic scheduled
TEC assessments might increase TEC use and that job performance data
should continue to be collected for evaluating TEC utilization. (The
questionnaire is appended.) (YLB)

Technical Report 448

# AN INVESTIGATION OF THE ADOPTION PROCESS IN TRAINING TECHNOLOGY TRANSFER

Jon S. Freda and Joyce L. Shields

Submitted by:
Halim Ozkaptan, Acting Chief
MANPOWER AND EDUCATIONAL SYSTEMS TECHNICAL AREA

Approved by:

James D. Baker, Acting Director
ORGANIZATIONS AND SYSTEMS
RESEARCH LABORATORY

U.S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES
5001 Eisenhower Avenue, Alexandria, Virginia 22333

Office, Deputy Chief of Staff for Personnel
Department of the Army

June 1980

Army Project Number
2Q162717A76A

Training Technology

iii

2

ARI Research Reports and Technical Reports are intended for sponsors of
R&D tasks and for other research and military agencies. Any findings ready
for implementation at the time of publication are presented in the last part
of the Brief. Upon completion of a major phase of the task, formal recom-
mendations for official action normally are conveyed to appropriate military
agencies by briefing or Disposition Form.

| REPORT DOCUMENTATION PAGE | | READ INSTRUCTIONS BEFORE COMPLETING FORM |
|---|---|---|
| 1. REPORT NUMBER<br>Technical Report 448 | 2. GOVT ACCESSION NO. | 3. RECIPIENT'S CATALOG NUMBER |
| 4. TITLE (and Subtitle)<br><br>AN INVESTIGATION OF THE ADOPTION PROCESS IN TRAINING TECHNOLOGY TRANSFER | | 5. TYPE OF REPORT & PERIOD COVERED<br><br>--- |
| | | 6. PERFORMING ORG. REPORT NUMBER<br>--- |
| 7. AUTHOR(s)<br><br>Jon S. Freda and Joyce L. Shields | | 8. CONTRACT OR GRANT NUMBER(s)<br><br>--- |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS<br>U.S. Army Research Institute for the Behavioral and Social Sciences<br>5001 Eisenhower Avenue, Alexandria, VA 22333 | | 10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS<br><br>2Q162717A764 |
| 11. CONTROLLING OFFICE NAME AND ADDRESS<br>Army Deputy Chief of Staff for Personnel<br>Washington, DC 20310 | | 12. REPORT DATE<br>June 1980 |
| | | 13. NUMBER OF PAGES<br>50 |
| 14. MONITORING AGENCY NAME & ADDRESS(If different from Controlling Office)<br><br>--- | | 15. SECURITY CLASS. (of this report)<br><br>Unclassified |
| | | 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE<br>--- |

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

---

18. SUPPLEMENTARY NOTES

---

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Transfer of training
Training Extension Course (TEC)
Multivariate analysis techniques
Adoption of training techniques

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
This study focused on the adoption process in the transfer of Army training technology from the researcher to the user. The training product chosen for this investigation was the Training Extension Course (TEC) program.

A two-part survey questionnaire was completed by 111 Army participants attending TRADOC/FORSCOM Training and Evaluation Workshops. The questionnaire requested attitudinal and usage information relating to the adoption of the
(Continued)

Item 20 (Continued)

Training Extension Course (TEC) program by unit training managers. Sources of TEC-related information were matched with the awareness, acceptance, and utilization stages of the adoption process to help understand the dissemination activity within training technology transfer. The attitudinal responses were factor analyzed and, with selected biographic information, were entered in a regression analysis to assess the utility of these measures as predictor variables of TEC utilization.

Two major findings emerged. First, the acceptance (PERSUADE stage) of the TEC program is influenced predominantly by internal sources of information (e.g., work environment), while the initial awareness (INFORM stage) and later utilization of TEC are influenced by internal and external sources (support groups, briefings, etc.). Second, prior familiarity with TEC is a better predictor of TEC usage than are attitudinal measures taken from the innovation literature (for this particular sample). However, familiarity alone does not insure extensive TEC usage, since there is an approximate 50-50 split between TEC users and nonusers who are previously familiar with TEC. The majority of TEC users scheduled TEC less than 10% of their training time. The findings suggest that periodic scheduled TEC assessments might increase TEC use and that job performance data should continue to be collected for evaluating TEC utilization. Suggestions are provided to improve and evaluate TEC utilization.

This report is intended primarily for behavioral and social scientists interested in applying multivariate analytic techniques to the study of technology transfer.

5.

The Manpower and Educational Systems Technical Area of the Army Research Institute for the Behavioral and Social Sciences (ARI) is concerned with improving individual and unit training through research in the design, methodology, and implementation of instructional delivery systems. One aspect of this research is to develop procedures for improving the acceptance and use of these training systems by Army personnel.

This report investigates the adoption process in the transfer of training technology from the researcher to the Army user. Work on this 6.2 effort was accomplished under Army Project 2Q162717A764, FY 1979, "Evaluation and Assessment of Training Technology."

JOSEPH ZEIDNER
Technical Director

# AN INVESTIGATION OF THE ADOPTION PROCESS IN TRAINING TECHNOLOGY TRANSFER

## BRIEF

### Requirement:

To investigate the influence of users' attitudes and sources of information on their adoption of a training research product.

### Procedure:

A two-part questionnaire was administered to 111 Army participants attending TRADOC/FORSCOM Training and Evaluation Workshops. The questionnaire gathered information on attitudes and usage relating to the adoption of the Training Extension Course (TEC) program by unit training managers. Sources of TEC-related information were matched with the awareness, acceptance, and utilization stages of the adoption process to gain an understanding of the dissemination activity within training technology transfer.

### Findings:

Two major findings emerged. First, the acceptance (PERSUADE stage) of the TEC program is influenced primarily by internal sources of information (e.g., work environment), while the initial awareness (INFORM stage) and later utilization of TEC are influenced by internal and external sources (e.g., support groups, briefings). Second, prior familiarity with TEC predicted TEC usage better than did attitudinal measures, for this particular group. However, familiarity alone does not insure extensive TEC usage, since about half of those previously familiar with TEC did not use it. The majority of TEC users scheduled TEC less than 10% of their training time.

### Utilization of Findings:

The sources of information contributing to the awareness and later utilization of TEC originated both within and outside the unit. However, TEC acceptance (i.e., the decision to use TEC) was influenced significantly more by sources of information within the unit. Far more people were aware of TEC than accepted and used it. The findings suggest that although awareness is influential, acceptance is relatively critical for TEC adoption. Therefore, efforts could be directed toward (a) recognizing that the unit is the primary decision point influencing acceptance of TEC and (b) providing updated and relevant information to key unit training personnel to insure a self-rene al capability that would direct the integration, adaptation, and modification of TEC from within the unit. Application of this approach may provide a reliable dissemination activity for improving product utilization in Army training technology transfer.

AN INVESTIGATION OF THE ADOPTION PROCESS IN TRAINING
TECHNOLOGY TRANSFER

## CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

x

# AN INVESTIGATION OF THE ADOPTION PROCESS IN TRAINING TECHNOLOGY TRANSFER

## INTRODUCTION

There is a present concern that a significant number of recently fielded Army training products have not been integrated sufficiently nor used effectively to improve individual and unit proficiency within the Army's materiel systems (Freda, 1980; Sands & Glaser, 1978; Shields, 1976). This concern can be viewed as an acceptance and usage problem in the transfer of new training technology from the researcher to the user. Focus on the training technology transfer process is based on the assumption that the strategies and procedures used to formulate and introduce new training technology in the field are primary determinants of the acceptance and use of the training products.

In addressing this problem, a systems model of Army training technology transfer has been developed to define the sequential flow of activities involved in the process (Freda, 1980). The activities in the model are (a) analysis of requirements (e.g., needs assessment, results in a researchable question); (b) research, develop, test, and evaluate solutions (e.g., research, test, develop, and evaluate [RDTE]; results in a research product), (c) dissemination of findings (can result in user acceptance); and (d) institutionalization (starts with the utilization of the product by the user and eventually is incorporated within the user's agency as part of standard practice) (see Figure 1 and Table 1).

The purpose of this model was to (a) document relevant Army regulations within the appropriate activities of the model, (b) provide an information base for use by Army decisionmakers to improve the process where needed, and (c) discuss suggestions for tracking product utilization. Within the framework of this model, a major issue is the lack of data on how dissemination efforts can be guided to insure the institutionalization of a training product. Specifically, critical concern is focused on variables that contribute to the user's adoption of a training product. The adoption process occurs during, and between, the dissemination of information of a training product and the institutionalization of the training product (initial utilization; see Figure 2).

A myriad of variables has been addressed in an effort to understand the adoption process (see Table 2). The variables researched in the present study are derived from two major questions. First, do users of training products possess attitudes different from those who do not use training products? For example, in a study of attitudinal differences between users and nonusers of computer-assisted instruction (CAI), Pengov (1977) found that CAI users had significantly more positive attitudes toward computers in general and more familiarity with educational innovations than did non-CAI users. The relevance of this research question to Army training technology transfer is that knowledge of user attitudinal variables may help to focus dissemination efforts on those potential users possessing attitudes similar to previous users of training products. Knowing on whom to focus one's efforts, then, may result in a reduction of the time-lag between RDTE and utilization, as well as a significant improvement in product utilization.

1

MONITORING, EVALUATION, AND FEEDBACK

```
┌──────────────┐      ┌──────────────────┐      ┌──────────────┐      ┌──────────────────┐
│ Analyze      │      │ Research, Develop,│     │ Disseminate  │      │ Institutionalize │
│ Requirements │─────▶│ Test and Evaluate │────▶│ Information  │─────▶│ Findings         │
│              │      │ Solutions         │     │              │      │                  │
└──────────────┘      └──────────────────┘      └──────────────┘      └──────────────────┘
        │                      │                        │                      │
┌──────────────┐      ┌──────────────────┐      ┌──────────────┐
│ Researchable │      │ Training          │     │ User         │
│ Question     │      │ Product           │     │ Acceptance   │
└──────────────┘      └──────────────────┘      └──────────────┘
```
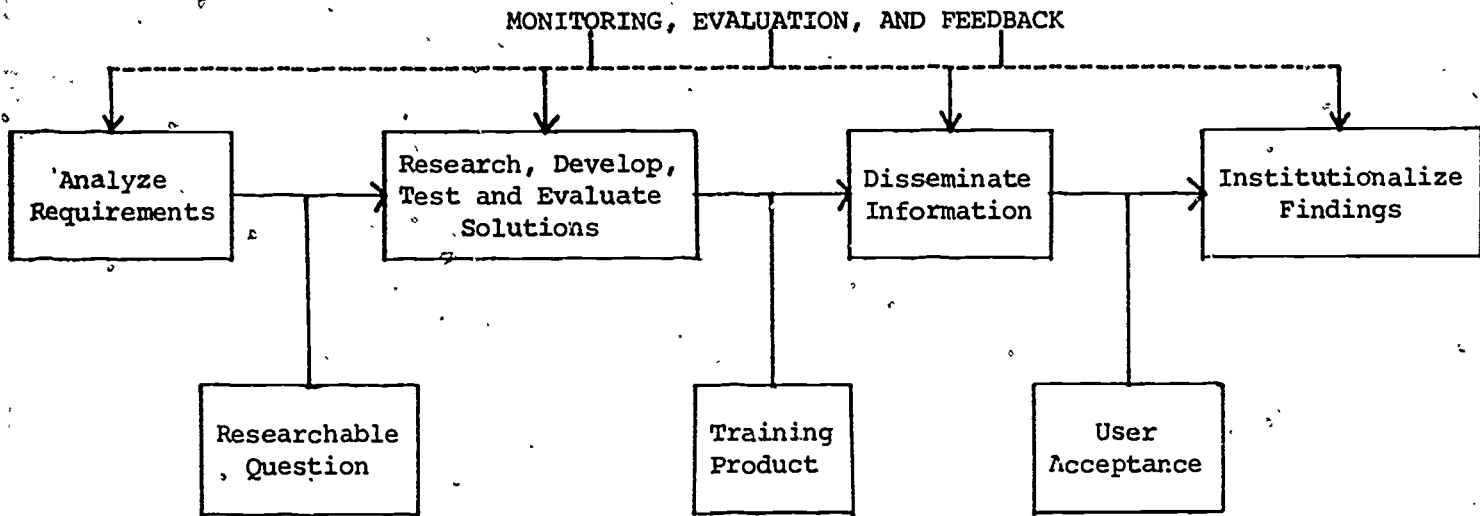
Figure 1.   Army training technology transfer model.

11

Table 1

Description and Keywords of Each Activity in the Model

| Activity | Description | Keywords |
|---|---|---|
| Analyze Requirements | A systematic effort by the researcher and the user to determine the goals, objectives, or alternatives for the basis of a productive effort at applied research technical assistance or organizational improvement (Hambrick, 1978). Requirements analysis may be viewed as a discrepancy analysis between "what is" (current condition; baseline activity level) and "what should be" (required or desired condition). A problem may then be defined as a documented discrepancy selected for resolution (Kaufman, 1972). Techniques to assess requirements must yield information that attempts to represent the two polar conditions of "what is" and "what should be." The result of a researcher-user requirements analysis is a researchable question, directed by the user's needs and adapted technically by the researcher's experience. | Baseline Discrimination<br>Definition Phase<br>Discrepancy Analysis<br>Forecasting<br>Needs Analysis/Assessment/ Identification<br>Organizational Diagnosis<br>Planning Stage<br>Problem Analysis/Definition/Diagnosis/ Identification<br>Program Analysis/ Formulation<br>Project Formulation<br>Social & Behavioral Indicators |
| Research, Test, Develop, and Evaluate (RDTE) Solutions | A systematic effort to establish a scientific knowledge base (6.1) for potential solutions to specific military problem areas (6.2), and to apply this knowledge in solving a researchable question directed, in part, by a military sponsor's need and/or directive (6.3A). The procedures describing Army HR RDTE are the most documented (by regulation and doctrine) relative to the other activities in the model. The end result of this activity is a training product which satisfies a sponsor's requirement. | Applied Research[a]<br>Assessment of Casualty<br>Basic Research[b]<br>Design, Development<br>Factor Identification/ Manipulation<br>Innovation/Invention Stage<br>Technology Application/ Utilization<br>Prototype Model/Breadboard Mockup<br>Variable Relationships<br>Field Testing and Evaluation<br>Validation and Feedback |

12

ω

Table 1 (Continued)

| Activity | Description | Keywords |
|---|---|---|
| Disseminate Information | The dispensation of information about RDTE products to users at various distances from the points of origin of the R&D product. (Shields, 1976). For example, an ARI scientist can relay information about a particular training product to the military sponsor who originally requested a need for the product. In this case, the ARI scientist describes the product designed in response to the user's need, demonstrates its operation, provides assistance in training "front-line" users to operate the product, and turns over the whole package to the user for·their own purposes. On a broader scale, the ARI scientist can inform other units, commands, agencies, etc. about this product, thereby diffusing the findings to other potential users more remote from the initial application of the training product. Individuals who promote the acceptance of the training product into their/other organization(s) are called Change Agents or Linkage Agents, and the process whereby disseminated findings are convincingly demonstrated to, and by, the Change Agents (and other users) is called Linkage or Change Agentry. Indicators of the dissemination of information to the user are observed in (a) professional publications, technical reports, briefings, and meetings with the sponsor/user; and (b) use of the Army Research and Development Information System (ARDIS) via its two subsystems: the Management Information System (ARDIS-MIS, which provides management type information to DCSRDA and information and guidance to ODCSRDA and other Army R&D managers); and the Scientific and Technical Information Program (S&TI, which is supported by the DDC data bank). The end result of this activity is the user's acceptance of the training product. | Change Agentry<br>Communication<br>Confirmation<br>Decision<br>Demonstration<br>Diffusion<br>Exchange/Feedback<br>Flow of Information<br>Knowledge Flow<br>Linkage<br>Reception/Rejection<br>Retrieval/Memory Bank<br>Transmission |

4

15

Table 1 (Continued)

| Activity | Description | Keywords |
|---|---|---|
| Institutionalize the Findings | After user acceptance, it is the time period during which the training product is incorporated and used effectively by the Army user. Ultimately, the training product becomes a stable and regular part of Army organizational procedures and user behavior. | Adaption<br>Adoption<br>Application<br>Assimilation<br>Diffusion<br>Distribution<br>Implementation<br>Policy<br>Routinization<br>Utilization |
| Monitoring, Evaluation and Feedback | A systematic effort to monitor and evaluate the technology transfer process of a training product and to provide feedback to the researcher and user concerning changes and new requirements in the formulation and introduction of current and subsequent training technology. | Assessing the Level of Product Use<br>Evaluation Study<br>Implementation Study<br>Predictive Model of Technology Transfer<br>Project Monitoring<br>Program Evaluation |

[a]Also known as commission-initiated research, contract-supported research, directed-research, mission-oriented research, payoff research, targeted research, research in the service of man, technology.

[b]Also known as contracted/grant research, fundamental research, nontargeted research, undirected research, science research.
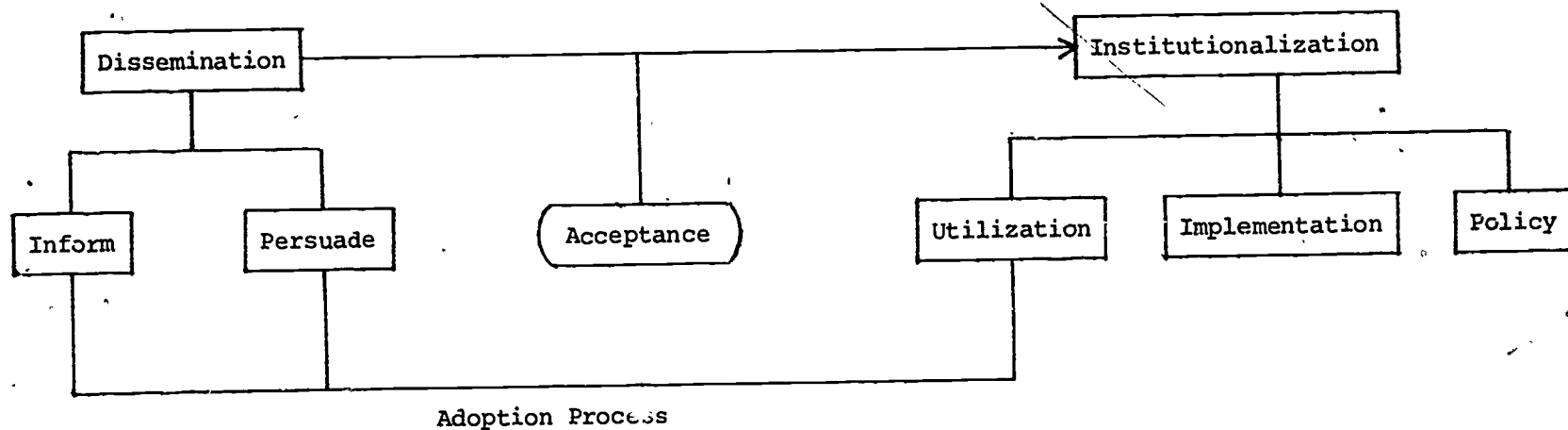
Figure 2. The adoption process in technology transfer.

18

19

Table 2

Factors Influencing the Likelihood of Adoption or Adaptation of a Seemingly Promising
Innovation by an Organization: Integrated Findings

| H. Davis (8 factors) | E. M. Glaser (20 factors) | G. Zaltman et al. (condensation of 19 factors) | R. Havelock et al. (10 factors) |
|---|---|---|---|
| Ability to carry out the change | Capability and resources | Financial and social costs | Structuring Capacity |
| Values or self-expectancy | Compatibility | Compatibility<br>Publicness vs. privateness<br>Impact on interpersonal relations | Homophily<br>Empathy |
| Idea or information about the qualities of the innovation | Credibility<br>Ease in understanding and installation<br>Observability<br>Trialability<br>Divisibility<br>Reversibility | Communicability<br>Divisibility<br>Reversibility<br>Complexity of concept or implementation<br>Susceptibility to successive modifications<br>Scientific status<br>Point of origin<br>Terminality | Openness |
| Circumstances which prevail at the time | Willingness to entertain challenge<br>A climate of trust<br>Structural reorganization | | Proximity |
| Timing or readiness for consideration of the idea | Sensitivity to context factors<br>Early involvement of potential users<br>Suitable timing | | Linkage<br>Synergy |

20

21

Table 2 (Continued)

| H. Davis (8 factors) | E. M. Glaser (20 factors) | G. Zaltman et al. (condensation of 19 factors) | R. Havelock et al. (10 factors) |
|---|---|---|---|
| Obligation, or felt need to deal with a particular problem | Relevance<br>Widespread felt need to correct undesirable conditions<br>Shared interest in solving recognized problems | Degree of commitment | Energy |
| Resistance or inhibiting factors | Skill in working through resistances | Risk or uncertainty of various kinds<br>Number of gatekeepers or approval channels | |
| Yield, or perceived prospect of payoff for adoption | Relative advantage<br>An incentive system | Efficiency of innovation<br>Perceived relative advantage<br>Gateway to other innovations | Reward |

Source. Davis and Glaser (1976).

22

23

The second question is concerned with knowing what sources of information are used by potential users during the adoption process. Sources of information are representative of types of authority. Studies conducted by Fairweather (1967, 1971, 1973, 1974) and Davis (1972) suggest that potential users are influenced by different types of authority during different stages of the adoption process. Specifically these studies have shown that external sources of information (i.e., originating outside the work environment of the user) influence the user's familiarity and subsequent utilization of a research product. However, internal sources of information (i.e., originating within the work environment of the user) appear to influence decisions to accept the research product (Fairweather, 1974). With respect to Army training technology transfer, if the potential user's reliance on different sources of information is related to different stages of the adoption process, then future dissemination efforts could be guided by the stages of the adoption process. Knowing what sources of information to introduce at each stage of the adoption process may improve the probability of user acceptance and utilization of the training product.

Accordingly, the purpose of this paper is to investigate both subjective (attitudinal) and objective (sources of information) variables that may influence the adoption of an Army training product. The training product chosen for study was the Training Extension Course (TEC). The Army's program consists of performance-oriented, self-paced lessons (mainly audiovisual) prepared by service schools to provide individual instruction for enlisted men in Army units. The TEC program was initiated by the U.S. Army Combat Arms Training Board in response to a 1971 Army directive to decentralize training management at battalion levels and below. Since that time, the TEC program has passed through various stages of development and evaluation. A current evaluation concerns the use of TEC (Mays, Holmgren, & Shelnutt, 1979).

A number of studies have investigated various aspects of the TEC program, including cost-effectiveness analysis of TEC (Temkin, Connolly, Marvin, Valdes, & Caviness, 1975); TEC training effectiveness compared with conventional Army classroom instruction (Knerr, Downey, & Kessler, 1975); TEC delivery via CAI (Hoyt, Bennik, & Butler, 1977); and effects on retention from TEC training compared with effects from conventional instruction and from Lesson Administrative Instructions (Holmgren, Hilligoss, Swezey, & Eakins, 1979). With respect to TEC utilization, two studies have been reported.

In a survey of selected active and reserve component units, McCluskey and Tripp (1975) found that (a) command emphasis did not affect the mode of use for TEC, (b) approximately 30% of the soldiers surveyed used TEC, (c) the major reason cited by the respondents for not using TEC was the lack of prior awareness about TEC, and (d) unit training officers and noncommissioned officers (NCOs) reported positive attitudes with respect to the content and utility of TEC. Based on the results of this study, some of the suggestions offered by the authors for improving TEC use were an increased role of the TEC learning centers; promotional, prototypic training programs for demonstrating TEC; and establishment of an incentive system to improve TEC use.

Mays, Holmgren, and Shelnutt (1979) conducted a two-phase survey of active and reserve component battalions within the Continental United States (CONUS), and battalion level personnel in U.S. Army, Europe (USAREUR) to

obtain TEC utilization data. In the first phase, Mays et al. (1979) found
that the reserve component used TEC more often than did the active component
(i.e., 49,103 vs. 14,722 individual TEC uses); TEC usage in the active com-
ponent was predominantly in an individual-mode, while that in the reserve
component was in the group (<6) mode; and for both components, the TEC use
rate per battalion was highest for infantry and lowest for field artillery.
This last finding is partially explained by the lack of MOS-specific TEC
lesson series and the inapplicability of common TEC lesson series to field
artillery than to infantry at the time the study was conducted. Some of the
findings from the second phase of their study were that lack of awareness of
TEC contributed to the number of TEC nonusers, command promotion of TEC was
low or moderate, and unit trainers influenced significantly the use of TEC.
Thus, the general consensus of the findings of these two studies is that
significant improvement could be realized in the effective use of the TEC
program.

As indicated by Mays et al. (1979), lack of awareness and low command
emphasis may be relevant variables contributing to ineffective TEC use.
This hypothesis could be related to the timing of dissemination efforts (in
the form of sources of information) in relation to the stages of the adop-
tion process. That is, the types of authority upon which one will rely to
decide to use TEC may depend on the existing stage of the adoption process.
Moreover, the attitudes of TEC users and nonusers may be used to predict,
in an ex post facto fashion, the extent of TEC use. This predictive approach
will assess the reliability of the relationship between attitudinal measures
of users and product utilization.

The present study differs from previous research on TEC utilization in
that a systems model of Army training technology transfer (Figure 1) is used
to organize data collection on the adoption process of a training product.
The research undertaken here assumes that an increased understanding of
(a) user attitudes toward training products, the organizational system, and
personal characteristics, and (b) sources of information used during the
adoption process will provide information for Army research and development
training managers who wish to introduce and use TEC in their units. More-
over, this study will provide data concerning the utility of a systems ap-
proach to predicting and understanding product utilization.

METHOD

## Sample

A two-part survey questionnaire (Appendix) was completed by 111 Army
(all active components) participants attending the TRADOC/FORSCOM Training
and Evaluation Workshops conducted during August and September 1976. Table 3
presents a breakdown of the location of the participants, and Table 4 pre-
sents the sample breakdown of their background information. These data in-
dicate that most participants were majors and captains assigned to S-3 duty
within Field Artillery or Infantry. Most had been assigned temporary duty
no more than once a year, and had fewer than two prior training-related
assignments.

Table 3

Respondent Location

| Location | Number of respondents | Percent |
|---|---|---|
| Fort Sill, Okla. | 22 | 19.8 |
| Fort Hood, Tex. | 20 | 18.0 |
| Panama | 12 | 10.8 |
| Fort Benning, Ga. | 11 | 9.0 |
| Fort Lewis, Wash. | 8 | 7.2 |
| Fort Bragg, N.C. | 7 | 6.3 |
| Fort Carson, Colo. | 5 | 4.5 |
| Fort Ord, Calif. | 4 | 3.6 |
| Panama (School of America) | 4 | 3.6 |
| Fort Polk, La. | 4 | 3.6 |
| Fort Richardson, Alaska | 4 | 3.6 |
| Fort Campbell, Ky. | 3 | 2.7 |
| Fort Knox, Ky. | 3 | 2.7 |
| Fort Stewart, Ga. | 2 | 1.8 |
| Germany | 1 | 0.9 |
| Korea | 1 | 0.9 |
| Total | 111 | 100.0 |

## Table 4

### Respondent Characteristics

| Background variable | Number of persons (N = 111) | Percentage |
|---|---|---|
| **Rank** | | |
| LTC | 5 | 4.5 |
| MAJ | 36 | 32.4 |
| CPT | 48 | 43.2 |
| 1LT | 6 | 5.4 |
| 2LT | 2 | 1.8 |
| NCO | 14 | 12.6 |
| **Current job assignment** | | |
| G-3 | 7 | 6.3 |
| S-3 | 67 | 60.4 |
| School | 4 | 3.6 |
| Training Officer/NCO | 12 | 10.8 |
| Other | 21 | 18.9 |
| **Branch** | | |
| Armor | 10 | 9.0 |
| Engineer | 8 | 7.2 |
| Field Artillery | 34 | 30.6 |
| Infantry | 37 | 33.3 |
| Other | 22 | 19.8 |
| **Frequency of TDY** | | |
| Never | 26 | 23.4 |
| Annually | 42 | 37.8 |
| Biannual-Qtrly | 23 | 20.7 |
| Monthly | 12 | 10.8 |
| No response | 8 | 7.2 |
| **Military schools attended** | | |
| 0 | 2 | 1.8 |
| No response | 3 | 2.7 |
| 1-2 | 43 | 38.7 |
| 5-10 | 26 | 23.4 |
| **Previous training assignments** | | |
| 0 | 19 | 17.1 |
| 1-2 | 57 | 51.4 |
| 3-4 | 21 | 18.9 |
| 5-7 | 5 | 4.5 |
| No response | 9 | 8.1 |

## Data Collection Form

The first section of the two-part questionnaire requested bibliographic information and presented 15 questions on communication patterns and use of TEC in the respondent's unit training program. Primary interest in this section was on three questions used to elicit the sources of information relied upon by the respondents during each stage of the adoption process (see Table 5). The second section of the questic  lire presented 23 items designed to assess the respondents' attitudes toward individual/personal characteristics, social system features, and innovation/research products. Attitudes toward these three major construct variables and their subcomponents have been reported to influence the adoption of research products (Davis & Glaser, 1976; Havelock, 1976; Pengov, 1977). These construct variables and their respective concept sources are presented in Table 6. Respondents rated each of the 23 topics on 10 bipolar adjective scales based on the format of the Osgood Semantic Differential (Osgood & Suci, 1955). Prior to data analysis, the 23 topics were arranged in accord with the construct variables.

### Table 5

### Questions Related to Stages of the Adoption Process

| Question | Stage |
|---|---|
| 1. From what source did you first learn of the TEC lessons? | INFORM |
| 2. What source of information convinced you to use TEC? | PERSUADE |
| 3. From what source of information did you learn how to use TEC? | UTILIZATION |

## Procedure

TEC usage data collection forms and instructions for completion were given to each participant in the TRADOC/FORSCOM Training and Evaluation Workshop. The participants' responses for the two-part questionnaire were transcribed onto coding sheets and punch-card coded for subsequent data analysis via the Statistical Package for the Social Sciences (Nie, Hull, Jenkings, Steinbrenner, & Bent, 1975).

Missing values on items in the first section of the questionnaire were not included in the data analysis. To facilitate data reduction in the second section of the questionnaire, one score for each item was computed by summing across the bipolar adjective scales, which have been reported to load greater than or equal to .75 on an evaluative dimension (e.g., Osgood & Suci,

13

Table 6

Construct Variables Linked to Section II Questionnaire Items and Concept Source

| Construct variable | Total items | Item number | Concept source |
|---|---|---|---|
| **Individual** | | | |
| Professional Self-Esteem | 2 | 5, 8 | Havelock, 1976 |
| **Social System** | | | |
| Leadership Behavior | 6 | 11-16 | Likert, 1967 |
| Social Interaction | 1 | 6 | Havelock, 1976 |
| Influence Unit Policy | 1 | 7 | Havelock, 1976 |
| Support | 1 | 22 | Alderman & Mahler, 1976 |
| **Innovation** | | | |
| Software Specific | 4 | 1, 3, 19, 20 | Havelock, 1976 |
| Hardware Specific | 2 | 2, 10 | Havelock, 1976 |
| Software General | 1 | 4 | Havelock, 1976 |
| General Issues | 3 | 9, 17, 18 | Havelock, 1976 |
| Cost-Benefit | 1 | 21 | Fliegel & Kivlin, 1966 |
| Degree of Change | 1 | 23 | Fliegel & Kivlin, 1966 |

Note. The analytical and research approach of this research is based on the methodology and research of Pengov (1977).

14

1955; Shaw & Wright, 1967). This procedure resulted in an item score based
on five scales: good-bad, honest-dishonest, fair-unfair, pleasant-
unpleasant, and valuable-worthless. Missing values on each of these scales
were managed in the following manner: (a) if one out of five scales was not
marked, that scale was assigned a median value [4]; and (b) if two or more
of the five scales were not marked, the summed score was replaced by the
within-subject mean obtained from the summed scales across the individual's
completed item scores. This procedure was used to minimize spurious corre-
lations due to unequal number of observations.

The information obtained in the first section of the questionnaire was
subjected to a contingency analysis and a descriptive histogram breakdown.
The item scores in the second section on the questionnaire were factor ana-
lyzed, converted to summed factor scores, and together with selected varia-
bles from the first section, entered into a regression analysis to assess
the utility of those attitudinal measures as predictor variables.

## RESULTS

### TEC-Related Information

Table 7 presents the source of information used during the adoption
process. Statistical analysis of the number of respondents who used the
different sources of information revealed that certain sources of infor-
mation were relied upon significantly more than other sources between and
within the stages of the adoption process ($X^2$ (8) = 38.35, $p$ < .001). Post
hoc comparisons among the proportions (all significant $z$'s > 1.96, $p$'s < .05)
of respondents using each source of information by each stage of the adoption
process (a between-cell analysis of Table 7) indicated that (a) respondents
relied on TEC information presented within the work environment and from
the published literature and text material to the same extent across each
stage of the adoption process; (b) reliance upon information from the train-
ing support groups and briefings was significantly greater during the initial
informative (awareness) and later utilization stages than during the middle
acceptance stage of the adoption of TEC within the unit; and (c) reliance
upon formal schools for information was greater during the initial awareness
than during the subsequent acceptance and utilization of TEC lessons.

Table 8 presents the sample breakdown of TEC utilization information.
The data show that among those respondents previously familiar with TEC
(FAMTEC), 46% were TEC users, whereas 21% of the respondents were not famil-
iar with TEC. Moreover, approximately half of the TEC users schedule TEC
for less than 10% of their training time. FAMTEC as well as selected back-
ground variables were entered into later regression analyses to assess the
relative importance of these variables in predicting TEC utilization (TECUSE).

### Factor Analysis

The initial concern with the 23 scale items in the second part of the
questionnaire was focused on the relationship among the scales and their
extent of agreement with the a priori categorization based on the construct
variables from innovation literature. Table 9 presents the mean rating and

15

31

Sources of TEC Information Relied Upon by Respondents[a] for Each Stage of the Adoption Process
(Data Combined for Captains and Majors; N = 84)

| Sources of information | Stages | | | | | |
|---|---|---|---|---|---|---|
| | INFORM[b] | | PERSUADE[c] | | UTILIZE[c] | |
| | Survey questions | | | | | |
| | "From what source of information did you first learn of the TEC lessons?" | | "What source of information convinced you to use TEC?" | | "From what source of information did you learn how to use TEC?" | |
| | Number[d] | Relative % | Number[d] | Relative % | Number[d] | Relative % |
| Work environment | 23 | 27.4 | 25 | 29.8 | 19 | 22.6 |
| Training support groups & briefings | 22 | 26.2 | 5 | 6.0 | 14 | 16.7 |
| Formal schools | 16 | 19.1 | 5 | 6.0 | 4 | 4.8 |
| Published literature and text material | 10 | 12.0 | 9 | 10.7 | 13 | 15.5 |

[a]Indicates relative number and percentage of respondents who answered the three questions.

[b]Includes TEC users and nonusers.

[c]Includes only TEC users.

[d]More than one source of information could have been reported by each respondent.

16

32

33

Table 8

Sample Breakdown of TEC Utilization Information

| TEC-related variables | | TEC users (N = 44) | Non-TEC users (N = 67) |
|---|---|---|---|
| Familiar with TEC | YES | 44 | 46 |
| | NO | 0 | 21 |
| Percent training time | 0 | 10 | 67 |
| used for TEC | 1-9 | 21 | 0 |
| | 10-29 | 9 | 0 |
| | 30-100 | 4 | 0 |

17  34

# Table 9

Mean Ratings and Standard Deviations of Respondents by
Item Number in Section II of the Questionnaire

| Item number | Construct variable | Mean | Standard deviation |
|---|---|---|---|
| 1 | Innovation | 27.4 | 6.8 |
| 2 | Innovation | 27.1 | 6.5 |
| 3 | Innovation | 28.0 | 6.7 |
| 4 | Innovation | 29.4 | 6.8 |
| 5 | Individual | 29.1 | 7.3 |
| 6 | Social System | 28.6 | 7.3 |
| 7 | Social System | 25.9 | 7.1 |
| 8 | Individual | 27.0 | 6.6 |
| 9 | Innovation | 19.5 | 6.8 |
| 10 | Innovation | 25.7 | 7.1 |
| 11 | Social System | 28.6 | 7.4 |
| 12 | Social System | 29.6 | 7.2 |
| 13 | Social System | 30.1 | 6.9 |
| 14 | Social System | 29.4 | 7.1 |
| 15 | Social System | 28.9 | 7.2 |
| 16 | Social System | 28.4 | 7.3 |
| 17 | Innovation | 23.6 | 7.4 |
| 18 | Innovation | 25.2 | 7.6 |
| 19 | Innovation | 26.4 | 7.3 |
| 20 | Innovation | 25.8 | 6.5 |
| 21 | Innovation | 27.0 | 6.8 |
| 22 | Social System | 24.8 | 7.0 |
| 23 | Innovation | 20.6 | 9.1 |

Note.   Scale Anchor Points:  Highest evaluation = 35; middle evaluation = 20;
lowest evaluation = 5.

35

standard deviations of each item across subjects. Split-half, odd-even reliability (Rulon, 1967) was computed to be .80, thus indicating good internal consistency among the items of the scale. Correlations among the items were then computed, and the resulting intercorrelation matrix was subjected to a Principal Components Factor Analysis with varimax rotation. A principal components solution was obtained in which unity (1) was placed in the diagonal of the intercorrelation matrix, and a minimum eigenvalue of 1 was used for the criterion of factor extraction. Results from the first pass showed that 14 factors had eigenvalues greater than 1, which accounted for 95.9% of the cumulative variance.

Subsequent passes were conducted on the 23 items, which were orthogonally varimax rotated on three through eight factors, respectively. Analysis of these subsequent passes indicated that five factors provided the optimum data reduction with respect to interpretive sense, minimum eigenvalue criterion, spread of item loadings, and maximum accounting of the variance.

Table 10 presents a breakdown of the varimax rotated factor loading matrix of item number and content by factor number and name. The results indicated that the a priori constructs of individual and social system variables were collapsed across an interpersonal dimension in this analysis, while the innovation variable retained its independence (although scattered into three variables) from the other two categories. Factor scores (Table 11) were then computed by summing across the time scores that loaded the heaviest within each factor (Nunnally, 1967). The factor scores were considered to be representative of the respective construct variable for this particular sample and were used in the subsequent regression analysis as a predictor variable of TEC utilization.

## Regression Analysis

A foward-stepwise multiple regression analysis was performed that entered as first into the regression equation that variable which explained the greatest amount of variance in the outcome variable. Classification of the predictor variables was based on the factor scores mentioned previously, as well as on the background and FAMTEC variables. TECUSE served as the outcome variable.

The only variable that entered significantly in the regression equation was FAMTEC. Further analyses yielded other variables which entered but not significantly. These variables each incremented the multiple R by at least 2% in predicting TECUSE; number of previous major military schools attended (School); present job assignment (Job); Army Branch (Branch); perceived attitude toward group lecture method (Factor 5); perceived degree of change (Factor 4); and perceived attitude toward training innovations (Factor 2). Table 12 shows the number of questionnaire items that must be added to obtain each variable along with the multiple R and percentage of the variance explained by each variable.

The findings indicate that given all construct variables, only prior familiarity with TEC (FAMTEC) is the most efficient and the only significant predictor of TEC use. Using only FAMTEC, the predictor equation that accounts for 12.7% of the variance is

Table 10

Rating Factors for Respondents by Item and Loadings[a]
(Total variance accounted for = 80.7%)

| Factor I Interpersonal 66.1%[b] | | Factor II Training innovations 4.6% | | Factor III General issues 3.9% | | Factor IV Degree of change 3.2% | | Factor V Lecture 2.9% | |
|---|---|---|---|---|---|---|---|---|---|
| Item | Loading | Item | Loading | Item | Loading | Item | Loading | Item | Loading |
| 5 | .69 | 1 | .75 | 17 | .68 | 23 | .92 | 9 | .90 |
| 6 | .62 | 2 | .70 | 18 | .77 | | | | |
| 7 | .72 | 3 | .65 | | | | | | |
| 8 | .73 | 4 | .72 | | | | | | |
| 11 | .74 | 10 | .71 | | | | | | |
| 12 | .74 | 19 | .64 | | | | | | |
| 13 | .76 | 20 | .73 | | | | | | |
| 14 | .82 | 21 | .56 | | | | | | |
| 15 | .83 | 22 | .63 | | | | | | |
| 16 | .82 | | | | | | | | |

[a]Factor inclusion criteria: Communality ≥ .45; Loading ≥ .55.

[b]Variance accounted for by each factor.

Table 11

Mean Factor Scores for Respondents Based on the
Sum of Item Scores Within Each Factor

| Factor name | Mean factor score | Standard deviation |
|---|---|---|
| I. Interpersonal | 285.9 | 64.1 |
| II. Training innovations | 241.6 | 53.0 |
| III. General issues | 48.9 | 13.3 |
| IV. Degree of change | 20.6 | 9.1 |
| V. Lecture | 19.5 | 6.8 |

Table 12

Number of Questionnaire Items Required for Predictor Variables
Compared with the Amount of Variance Explained

| Construct variable | Number of questionnaire items used | Cumulative number of questionnaire items | Percentage of variance explained | Cumulative percent of variance explained |
|---|---|---|---|---|
| FAMTEC[a] | 1 | 1 | 12.7 | 12.7 |
| Factor 2 | 9 | 10 | 3.0 | 15.0 |
| Factor 4 | 1 | 11 | 2.8 | 17.8 |
| Branch | 1 | 12 | 1.2 | 19.0 |
| School | 1 | 13 | 1.1 | 20.1 |
| Job | 1 | 14 | 1.0 | 21.0 |
| Factor 5 | 1 | 15 | 0.8 | 21.8 |

[a]$F_{(1, 98)} = 14.3$, $p < .001$.

$$TECUSE = 1.92 - .44 \text{ (FAMTEC)}.$$

Using all seven variables, the equation that accounts for 21.8% of the variance becomes.

$$TECUSE = 2.14 - .45 \text{ (FAMTEC)} - .01 \text{ (Factor 4)} - .08 \text{ (School)}$$

$$- .01 \text{ (Job} + .02 \text{ (Branch)} - .02 \text{ (Factor 5)} + .003 \text{ (Factor 2)}.$$

One point of caution must be made with respect to the regression equations. The mix of variables, coefficients, and constants in the equations as shown have been maximized for a particular sample under study. One should expect slippage of predictability if the equations are used with other populations (Darlington, 1978; Winer, 1978). Furthermore, even though the analysis thus far has suggested a minimal set of construct variables for TEC users and non-TEC users, there is no guarantee that a new instrument using only these measurement variables would produce the same results. Such a study should be tried, but the individual, social system, and innovation variables should be expanded and included.

## DISCUSSION

### Findings

Two major findings emerged from this study. First, the acceptance (PERSUADE stage) of the TEC program is influenced predominantly by internal sources of information (e.g., work environment), while the initial awareness (INFORM stage) and later utilization of TEC are influenced by internal and external sources of information (e.g., support groups, briefings, etc.). This finding supports the data of Mays et al. (1979), who found that 74% of the soldiers surveyed learned to accept TEC from their unit trainers.

Second is that prior familiarity with TEC is a better predictor of TEC usage than are attitudinal measures taken from the innovation literature (for this particular sample). However, familiarity alone does not insure extensive TEC usage, since there is an approximate 50-50 split between TEC users and nonusers who are previously familiar with TEC. In addition, most TEC users in the present study scheduled TEC less than 10% of their training time. This second finding is similar to the 50.2% of respondents being TEC users as reported by Mays et al. (1979). Moreover, this finding suggests that remedy of the lack of awareness of TEC reported in McCluskey and Tripp (1975) would not lead necessarily to TEC utilization. The two major findings are discussed in detail below.

1. Attitudinal Measures and TEC Familiarity. Specifically, the interpersonal dimension found in this study is a composite of two separate dimensions obtained a priori from the literature. The fact that an interpersonal dimension was found is partly due to the lack of items that could have discriminated between a separate individual and social system variable. Attitudes toward training innovations were clustered generally around one factor, although three other factors were observed that evidently were not perceived similarly in terms of training innovations by the respondents.

22

40

Thus, these findings suggest that attitudinal measures of the adoption process with respect to interpersonal and training appear to cluster similarly across laboratory studies, although these measures may not be significant for prediction purposes. That is, the relative importance of indices sampled in this study weights an individual's prior familiarity with TEC as the only significant predictor of TEC utilization.

Support for this finding comes from Pengov (197. , who observed that prior familiarity with educational innovation was the single most effective predictor of computer-assisted instruction (CAI) usage among her respondents, accounting for approximately 18% of the variance. Similarly, in the present study prior familiarity with TEC was the only significant predictor of TEC usage, accounting for approximately 13% of the variance of the respondents' answers.

2. <u>Sources of Information</u>. The sources of information change with the stages of the adoption process. It appears that the proximity of the source of the information is valued as the time approaches to commit oneself to accept/refuse the training product. TEC users relied more on within-unit information to decide to accept TEC. This finding, together with familiarity alone not insuring TEC use, indicates that the potential user's selection of authoritative sources of TEC changed over time during the adoption process. Thus, dissemination efforts could synchronize and adapt TEC-related information with the potential user's bias toward the authoritative source relied upon during the particular stage of the adoption process.

<u>Suggestions</u>

Suggestions based on these results depend upon the primary objective of Army training and its subsequent measures of effectiveness, costs, and benefits. If the objective is to improve unit or individual proficiency in Army personnel by providing a self-paced, decentralized, managed training system, then agreement must be made on measures of effectiveness that evaluate the system. TEC use has been a primary measure of effectiveness to evaluate the TEC program. Previous research has reported a significant relationship between TEC lesson use and MOS test performance (e.g., Jaccos & Hardy, 1974; Knerr, Downey, & Kessler, 1975). Moreover, an increase in TEC use has been reported to be related to more cost-effective training (Temkin, Connolly, Marvin, Valdes, & Caviness, 1975). Therefore, based on these past results and findings of the present study, two suggestions are provided to improve TEC use (assuming that this activity is a reliable measure of TEC effectiveness) and to evaluate TEC utilization (scrutinizing this activity as a sole measure of effectiveness).

1. <u>To Improve TEC Use</u>. More activity may be needed, not only in terms of the introduction of TEC to users based on information within the work environment and from training support groups and briefings, but also in terms of a <u>periodically scheduled assessment</u>, both in-house and by outside support groups, of the units' activity to integrate and update TEC into its training schedule. This assessment may be pursued by a more vigorous role in training support groups and briefings, as well as formal schools, to facilitate the adoption of TEC by units. Other research (such as Fairweather's studies

and Davis' research on National Institute of Mental Health projects) reports a need for outside pressure or advocacy from the beginning if the projects are even to be disseminated, much less accepted.

Although initial outside assessments should be considered, the ultimate goal should be to establish an in-house TEC assessment schedule to insure acceptance and utilization of TEC. That is, the acceptance aspect of the adoption process appears to depend more on internally originated information (i.e., within work environment) than on externally originated information (i.e., support groups, etc.). This in-house assessment schedule may be accomplished, for example, by developing a program in which Army training centers would provide the units' training managers, supervisors, and/or operations NCOs with the procedures and information to integrate and update TEC lessons usage. The objective here would be to provide a context that would facilitate a readiness to seek information and knowledge of practice from external sources which would be incorporated within the unit (see Digman, 1977, for more details).

In addition, TEC user meetings could be sponsored that would allow the "frontline" users to discuss their experiences of different utilization plans, problems, adaptations of TEC to their units. The goal here would be to strengthen the interbranch network of communication concerning utilization strategies and to help foster person-to-person communication--two factors reported to be highly influential in the innovation change process (Davis & Glaser, 1976). Moreover, the exchange of information among TEC users could be directed toward a self-renewal capability in which TEC users (e.g., training managers, unit instructors, etc.) would be involved in the modification and upgrading of the content and quality of TEC lessons within their unit, perhaps at company levels. TEC user involvement at this level could be supported by a TEC course development team, located at learning centers or provided from outside support groups. Such an activity has been employed, for example, within a CAI environment at the Ohio State University College of Medicine (Pengov, 1977).

The personal incentive for the unit's personnel involved in the assessment and/or meetings could be official recognition of the person's attempt to integrate and update TEC lesson usage into the training schedule and official documentation in the individual's personnel folder. These suggestions are in support of those of McCluskey et al. (1975) and Mays et al. (1979) that promoted company level involvement in learning how to use TEC, TEC learning center involvement in training unit trainers in TEC, promotion points for both the student and unit trainer, and greater command emphasis.

2. To Evaluate TEC-Related MOS Performance. MOS performance data and other relevant variables should be continued to be collected, as well as TEC lesson usage rates per unit, in order to observe long-term trends. These trends may then be analyzed in terms of determining the optimal mix of TEC integration with conventional/other training based on selected measures of MOS performance. That is, TEC utilization alone may produce a diminishing rate of return when maximum level of MOS performance is reached. Therefore, alternative mixes of TEC usage and conventional and/or other types of training methods could be considered as TEC evaluation continues.

42

REFERENCES

Alderman, D. L., & Mahler, W. A.  Faculty predispositions toward computer
assisted instruction:  Initial attitudes at two year colleges.  Bul-
letin of the Interuniversity Communications Council, Inc., EDUCOM.
Princeton, N.J., Spring 1976.

Army Training Support Center (ATSC).  TEC, Bulletin Number 78-2, May 1978.

Darlington, R. B.  Reduced-variance regression.  Psychological Bulletin,
1978, 85(6), 1238-1255.

Davis, H. R.  Mental health research and development:  A report to the
PSAC panel on health services research and development.  Washington,
D.C.:  National Institute of Mental Health, 1972.

Davis, H. R., & Glaser, E. M. (Eds.).  Putting knowledge to use:  A dis-
tillation of the literature regarding knowledge transfer and change.
Human Interaction Research Institute, National Institute of Mental
Health Grant Number 5 R01 MH 22683-03 MHS, November 1976.

Digman, L. A.  Organizational factors related to technology transfer and
innovation.  The Journal of Technology Transfer, 1977, 2(1), 61-68.

Fairweather, G. W.  Methods for experimental social innovation.  New York:
Wiley and Sons, 1967.

Fairweather, G. W.  Experimental innovation defined.  In H. A. Hornstein,
B. B. Bunker, W. W. Burke, M. Gindes, & R. J. Lewicki (Eds.), Social
intervention:  A behavioral science approach.  New York:  The Free
Press, 1971.

Fairweather, G. W.  Innovation:  A necessary but insufficient condition for
change.  Innovations, 1973, 1, 25-27.

Fairweather, G. W.  Creating change in mental health organizations.  Elms-
ford, N.Y.:  Pergamon Press, 1974.

Fliegel, F. C., & Kivlin, J. E.  Attribute of innovations as factors in
diffusion.  The American Journal of Sociology, 1966, 72(3), 235-248.

Freda, J. S.  Army training technology transfer:  A systems model.  ARI
Research Report 1241, July 1980.

Hambrick, R. S.  Needs and information needs:  Some approaches to needs
analysis.  Paper presented at National Institute of Education Dissemi-
nation Seminar, 3 May 1978.

Havelock, R. G.  Planning for innovation through dissemination and utili-
zation of knowledge.  Ann Arbor, Mich.:  Institute for Social Research,
University of Michigan, 1976.

43

Holmgren, J. E., Hilligoss, R. E., Swezey, R. W., & Eakins, R. C. Train-
ing effectiveness and retention of training extension course (TEC)
instruction in the combat arms. ARI Research Report 1208, April 1979.

Hoyt, W. G., Bennik, F. D., & Butler, A. K. The effectiveness of alterna-
tive media in conjunction with TEC for improving performance in MOS
related tasks. ARI Technical Report TR 77-A20, December 1977.

Jacobs, T. O., & Hardy, R. A. Test and evaluation of Training Extension
Course. Human Resources Research Organization Technical Report 74-16,
June 1974. (AD 784 200)

Kaufman, R. A. Educational system planning. Englewood Cliffs, N.J.:
Prentice-Hall, Inc., 1972.

Knerr, C. S., Downey, R. G., & Kessler, J. J. Training individuals in Army
units: Comparative effectiveness of selected TEC lessons and conven-
tional methods. ARI Research Report 1188, December 1975.

Likert, R. The Human Organization: Management and value. New York:
McGraw-Hill Book Company, 1967.

Mays, P. V., Holmgren, J. E., & Shelnutt, J. B. Current use, patterns of
use, and factors affecting use of the Army Training Extension Course
(TEC) Program. ARI Technical Report TR 79-A3, May 1979.

McClusky, M. R., & Tripp, J. M. An evaluation of the utilization, main-
tenance and perceived benefits of the Training Extension Course (TEC)
(Tech Rep 75-18). Alexandria, Va.: Human Resources Research Organi-
zation, June 1975.

Nie, N. M., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. M.
Statistical package for the social sciences. New York: McGraw-Hill
Book Company, 1975.

Nunnally, J. C. Psychometric theory. New York: McGraw-Hill Book Co.,
1967.

Osgood, C. E., & Suci, G. J. Factor analysis of meaning. Journal of Ex-
perimental Psychology, 1955, 50, 325-338.

Pengov, R. E. Key individual, social, and innovation variables influencing
the diffusion of computer assisted instruction (CAI). Doctoral dis-
sertation, Ohio State University, 1977.

Rulon, P. J. A simplified procedure for determining the reliability of a
test by split-halves. In W. A. Mehrens & R. L. Ebel (Eds.), Princi-
ples of educational and psychological measurement. Chicago, Ill.:
Rand McNally and Co., 1967.

Sands, F. F., & Glaser, R. M. (Eds.). Proceedings of the 1977 National
Symposium of the military services on utilization of people-related
research, development, test and evaluation (RDT&E). Navy Personnel
Research and Development Center (NPRDC), SE 78-3, N00 123-76-C-0174,
January 1978.

Shaw, M. E., & Wright, J. M.  Scales for the measurement of attitudes.  New York:  McGraw-Hill Book Co., 1967.

Shields, J. L.  Training Technology Transfer.  Proceedings of the 15th Annual Operations Research Symposium, Fort Lee, Va., 27-29 October 1976.

Tempkin, S., Connolly, J. A., Marvin, M. D., Valdes, A. L., & Caviness, J. A.  A cost assessment of Army training alternatives.  ARI Research Problem Review 75-3, August 1975.

Winer, B. J.  Statistics and data analysis:  Trading bias for reduced mean square error.  Annual Review of Psychology, 1978, 29, 647-681.

45

# TRAINING TECHNOLOGY TRANSFER (T$^3$)

ari

PT 5146

## DATA REQUIRED BY THE PRIVACY ACT OF 1974
### (5 U.S.C. 552a)

| TITLE OF FORM | PRESCRIBING OIRECTIVE |
|---|---|
| PT 5146, Training Technology Transfer ($T^3$) | AR 70-1 |

**1. AUTHORITY**

10 USC Sec 4503.

**2. PRINCIPAL PURPOSE(S)**

The data collected with the attached form are to be used for research purposes only.

**3. ROUTINE USES**

This is an experimental personnel data collection form developed by the U.S. Army Research Institute for the Behavioral and Social Sciences pursuant to its research mission as prescribed in AR 70-1. When identifiers (name or Social Security Number) are requested they are to be used for administrative and statistical control purposes only. Full confidentiality of the responses will be maintained in the processing of these data.

**4. MANOATORY OR VCLUNTARY OISCLOSURE AND EFFECT ON INOIVIOUAL NOT PROVIOING INFORMATION**

Your participation in this research is strictly voluntary. Individuals are encouraged to provide complete and accurate information in the interests of the research, but there will be no effect on individuals for not providing all or any part of the information. This notice may be detached from the rest of the form and retained by the individual if so desired.

| FORM | Privacy Act Statement - 26 Sep 75 |
|---|---|

DA Form 4368-A, 1 May 75

Name:

Social Security Number:

Rank:

Date of Rank:

Organization:

Present Job Assignment:

Branch:

Length of time in Organization:

Length of time in present Job Assignment:

Previous assignments in your Organization:

Previous training related assignments:

How frequently do you go on TDY?

List all major military schooling (note if it were a correspondence course):

31

48

Questions 1-3 deal with communication patterns. This information is important to this research effort. Therefore, we would appreciate answers to the following questions. The names you enter will be used only to tabulate patterns of communication.

(1) Please list by name, rank and duty position the three friends in your organization you see most often socially.

   (a)

   (b)

   (c)

(2) Please list by name, rank and duty position the three persons y work closest with in your organization.

   (a)

   (b)

   (c)

(3) When you need advice on training problems who are the three people you most frequently turn to? (Please list by name, rank and duty position.)

   (a)

   (b)

   (c)

Questions 4-15 deal with the use of TEC lessons as presented on the Beseler Que/See in your unit's training program.

(4) From what source of information did you first learn of TEC lessons?

   (a) _____

   (b) I am not familiar with TEC (turn in 1st part of questionnaire).

(5) How frequently do you use TEC?

   (a) Never

   (b) Daily

   (c)

32

49

(6). What source of information convinced you to use TEC?

(7) From what source of information did you learn how to use TEC?

(8) What subjects do you use TEC lessons to teach?



(9) How many TEC lessons are available in your battalion?

(10) What % of your training time do you use TEC?

(11) If you do not use TEC in your training program--why? (You can
circle more than one.)

    (a) it is not an effective teaching device
    (b) do not have time
    (c) do not have manpower
    (d) did not receive training on how to use
    (e) did not receive TEC lessons
    (f) did not receive equipment
    (g) equipment is not available to me
    (h) non-availability of appropriate lessons
    (i)

(12) Under ideal circumstances what is the percentage of your training
time that you would use TEC?

(13) Under ideal circumstances what is the <u>minimal</u> percentage of your
training time that you would use TEC?

(14) Under ideal circumstances what is the <u>maximal</u> percentage of your
training time that you would use TEC?

(15) Please rate the value of TEC relative to traditional instruction
for the same subject using the following scale. Mark the point
and indicate the value below the scale.

| much<br>worse | | worse | | the same as<br>traditional<br>instruction | | | | better | | much<br>better |
|---|---|---|---|---|---|---|---|---|---|---|
| -50 | -40 | -30 | -20 | -10 | 0 | 10 | 20 | 30 | 40 | 50 |

33

76:5146-1

50

TRAINING TECHNOLOGY TRANSFER (T$^3$)    Part 2

Name::

Social Security Number:

34

Each of the following concepts is followed by 10 identical sets of adjective pairs. Each adjective pair is separated by a seven-point scale. Please rate your <u>attitude</u> toward each of the concepts by placing an X along the seven-point scale. Place the X on the line which represents the scale position corresponding to your assessment of the concept relative to that pair of adjectives. The direction you choose left or right of the center of the scale indicates whether you think the concept is more nearly associated with one or the other of the two descriptive adjectives. A mark in the middle indicates that you believe that the concept is midway with respect to the two qualities described in the adjective pairs.

If you are totally unfamiliar with a concept please place the symbol N/A next to the concept.

35

52

1.   TEC lessons

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | bad |
| rough | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | smooth |
| honest | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | dishonest |
| passive | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | active |
| fair | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | unfair |
| weak | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | strong |
| fast | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | slow |
| unpleasant | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | pleasant |
| hard | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | soft |
| worthless | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | valuable |

2.   Sony Rover Television Trainer (TVT)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | bad |
| rough | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | smooth |
| honest | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | dishonest |
| passive | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | active |
| fair | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | unfair |
| weak | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | strong |
| fast | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | slow |
| unpleasant | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | pleasant |
| hard | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | soft |
| worthless | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | valuable |

3.   ARTEP

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | bad |
| rough | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | smooth |
| honest | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | dishonest |
| passive | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | active |
| fair | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | unfair |
| weak | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | strong |
| fast | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | slow |
| unpleasant | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | pleasant |
| hard | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | soft |
| worthless | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | valuable |

4.   Performance Oriented Training

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | bad |
| rough | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | smooth |
| honest | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | dishonest |
| passive | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | active |
| fair | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | unfair |
| weak | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | strong |
| fast | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | slow |
| unpleasant | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | pleasant |
| hard | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | soft |
| worthless | __:__ | __:__ | __:__ | __:__ | __:__ | __:__ | valuable |

## 5. Pride of workmanship

| | : | : | : | : | : | : | |
|---|---|---|---|---|---|---|---|
| good | | | | | | | bad |
| rough | | | | | | | smooth |
| honest | | | | | | | dishonest |
| passive | | | | | | | active |
| fair | | | | | | | unfair |
| weak | | | | | | | strong |
| fast | | | | | | | slow |
| unpleasant | | | | | | | pleasant |
| hard | | | | | | | soft |
| worthless | | | | | | | valuable |

## 6. Positive social interaction with peers

| | : | : | : | : | : | : | |
|---|---|---|---|---|---|---|---|
| good | | | | | | | bad |
| rough | | | | | | | smooth |
| honest | | | | | | | dishonest |
| passive | | | | | | | active |
| fair | | | | | | | unfair |
| weak | | | | | | | strong |
| fast | | | | | | | slow |
| unpleasant | | | | | | | pleasant |
| hard | | | | | | | soft |
| worthless | | | | | | | valuable |

## 7. ability to influence unit policy

| | : | : | : | : | : | : | |
|---|---|---|---|---|---|---|---|
| good | | | | | | | bad |
| rough | | | | | | | smooth |
| honest | | | | | | | dishonest |
| passive | | | | | | | active |
| fair | | | | | | | unfair |
| weak | | | | | | | strong |
| fast | | | | | | | slow |
| unpleasant | | | | | | | pleasant |
| hard | | | | | | | soft |
| worthless | | | | | | | valuable |

## 8. training trainers "how to train"

| | : | : | : | : | : | : | |
|---|---|---|---|---|---|---|---|
| good | | | | | | | bad |
| rough | | | | | | | smooth |
| honest | | | | | | | dishonest |
| passive | | | | | | | active |
| fair | | | | | | | unfair |
| weak | | | | | | | strong |
| fast | | | | | | | slow |
| unpleasant | | | | | | | pleasant |
| hard | | | | | | | soft |
| worthless | | | | | | | valuable |

### 9. lecture method for large groups

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | ___ : ___ : ___ : ___ : ___ : ___ : ___ | bad |
| rough | ___ : ___ : ___ : ___ : ___ : ___ : ___ | smooth |
| honest | ___ : ___ : ___ : ___ : ___ : ___ : ___ | dishonest |
| passive | ___ : ___ : ___ : ___ : ___ : ___ : ___ | active |
| fair | ___ : ___ : ___ : ___ : ___ : ___ : ___ | unfair |
| weak | ___ : ___ : ___ : ___ : ___ : ___ : ___ | strong |
| fast | ___ : ___ : ___ : ___ : ___ : ___ : ___ | slow |
| unpleasant | ___ : ___ : ___ : ___ : ___ : ___ : ___ | pleasant |
| hard | ___ : ___ : ___ : ___ : ___ : ___ : ___ | soft |
| worthless | ___ : ___ : ___ : ___ : ___ : ___ : ___ | valuable |

### 10. training simulators (e.g., sub-calibre devices)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | ___ : ___ : ___ : ___ : ___ : ___ : ___ | bad |
| rough | ___ : ___ : ___ : ___ : ___ : ___ : ___ | smooth |
| honest | ___ : ___ : ___ : ___ : ___ : ___ : ___ | dishonest |
| passive | ___ : ___ : ___ : ___ : ___ : ___ : ___ | active |
| fair | ___ : ___ : ___ : ___ : ___ : ___ : ___ | unfair |
| weak | ___ : ___ : ___ : ___ : ___ : ___ : ___ | strong |
| fast | ___ : ___ : ___ : ___ : ___ : ___ : ___ | slow |
| unpleasant | ___ : ___ : ___ : ___ : ___ : ___ : ___ | pleasant |
| hard | ___ : ___ : ___ : ___ : ___ : ___ : ___ | soft |
| worthless | ___ : ___ : ___ : ___ : ___ : ___ : ___ | valuable |

### 11. myself as a squad leader

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | ___ : ___ : ___ : ___ : ___ : ___ : ___ | bad |
| rough | ___ : ___ : ___ : ___ : ___ : ___ : ___ | smooth |
| honest | ___ : ___ : ___ : ___ : ___ : ___ : ___ | dishonest |
| passive | ___ : ___ : ___ : ___ : ___ : ___ : ___ | active |
| fair | ___ : ___ : ___ : ___ : ___ : ___ : ___ | unfair |
| weak | ___ : ___ : ___ : ___ : ___ : ___ : ___ | strong |
| fast | ___ : ___ : ___ : ___ : ___ : ___ : ___ | slow |
| unpleasant | ___ : ___ : ___ : ___ : ___ : ___ : ___ | pleasant |
| hard | ___ : ___ : ___ : ___ : ___ : ___ : ___ | soft |
| worthless | ___ : ___ : ___ : ___ : ___ : ___ : ___ | valuable |

### 12. myself as a platoon leader

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | ___ : ___ : ___ : ___ : ___ : ___ : ___ | bad |
| rough | ___ : ___ : ___ : ___ : ___ : ___ : ___ | smooth |
| honest | ___ : ___ : ___ : ___ : ___ : ___ : ___ | dishonest |
| passive | ___ : ___ : ___ : ___ : ___ : ___ : ___ | active |
| fair | ___ : ___ : ___ : ___ : ___ : ___ : ___ | unfair |
| weak | ___ : ___ : ___ : ___ : ___ : ___ : ___ | strong |
| fast | ___ : ___ : ___ : ___ : ___ : ___ : ___ | slow |
| unpleasant | ___ : ___ : ___ : ___ : ___ : ___ : ___ | pleasant |
| hard | ___ : ___ : ___ : ___ : ___ : ___ : ___ | soft |
| worthless | ___ : ___ : ___ : ___ : ___ : ___ : ___ | valuable |

**13. myself as a company commander**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | bad |
| rough | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | smooth |
| honest | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | dishonest |
| passive | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | active |
| fair | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | unfair |
| weak | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | strong |
| fast | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | slow |
| unpleasant | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | pleasant |
| hard | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | soft |
| worthless | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | valuable |

**14. myself as a battalion commander**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | bad |
| rough | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | smooth |
| honest | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | dishonest |
| passive | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | active |
| fair | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | unfair |
| weak | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | strong |
| fast | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | slow |
| unpleasant | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | pleasant |
| hard | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | soft |
| worthless | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | valuable |

**15. myself as a brigade commander**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | bad |
| rough | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | smooth |
| honest | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | dishonest |
| passive | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | active |
| fair | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | unfair |
| weak | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | strong |
| fast | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | slow |
| unpleasant | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | pleasant |
| hard | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | soft |
| worthless | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | valuable |

**16. myself as commanding general of a division**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| good | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | bad |
| rough | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | smooth |
| honest | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | dishonest |
| passive | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | active |
| fair | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | unfair |
| weak | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | strong |
| fast | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | slow |
| unpleasant | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | pleasant |
| hard | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | soft |
| worthless | \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | : \_\_\_\_ | valuable |

### 17. on duty education (GED)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| good | | : | : | : | : | : | : | bad |
| rough | | : | : | : | : | : | : | smooth |
| honest | | : | : | : | : | : | : | dishonest |
| passive | | : | : | : | : | : | : | active |
| fair | | : | : | : | : | : | : | unfair |
| weak | | : | : | : | : | : | : | strong |
| fast | | : | : | : | : | : | : | slow |
| unpleasant | | : | : | : | : | : | : | pleasant |
| hard | | : | : | : | : | : | : | soft |
| worthless | | : | : | : | : | : | : | valuable |

### 18. Women in the Army

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| good | | : | : | : | : | : | : | bad |
| rough | | : | : | : | : | : | : | smooth |
| honest | | : | : | : | : | : | : | dishonest |
| passive | | : | : | : | : | : | : | active |
| fair | | : | : | : | : | : | : | unfair |
| weak | | : | : | : | : | : | : | strong |
| fast | | : | : | : | : | : | : | slow |
| unpleasant | | : | : | : | : | : | : | pleasant |
| hard | | : | : | : | : | : | : | soft |
| worthless | | : | : | : | : | : | : | valuable |

### 19. SQT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| good | | : | : | : | : | : | : | bad |
| rough | | : | : | : | : | : | : | smooth |
| honest | | : | : | : | : | : | : | dishonest |
| passive | | : | : | : | : | : | : | active |
| fair | | : | : | : | : | : | : | unfair |
| weak | | : | : | : | : | : | : | strong |
| fast | | : | : | : | : | : | : | slow |
| unpleasant | | : | : | : | : | : | : | pleasant |
| hard | | : | : | : | : | : | : | soft |
| worthless | | : | : | : | : | : | : | valuable |

### 20. Engagement Simulation (SCOPES, REALTRAIN)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| good | | : | : | : | : | : | : | bad |
| rough | | : | : | : | : | : | : | smooth |
| honest | | : | : | : | : | : | : | dishonest |
| passive | | : | : | : | : | : | : | active |
| fair | | : | : | : | : | : | : | unfair |
| weak | | : | : | : | : | : | : | strong |
| fast | | : | : | : | : | : | : | slow |
| unpleasant | | : | : | : | : | : | : | pleasant |
| hard | | : | : | : | : | : | : | soft |
| worthless | | : | : | : | : | : | : | valuable |

40

21. Training innovations save time and manpower

| good | : | : | : | : | : | : | | bad |
|------|---|---|---|---|---|---|---|-----|
| rough | : | : | : | : | : | : | | smooth |
| honest | : | : | : | : | : | : | | dishonest |
| passive | : | : | : | : | : | : | | active |
| fair | : | : | : | : | : | : | | unfair |
| weak | : | : | : | : | : | : | | strong |
| fast | : | : | : | : | : | : | | slow |
| unpleasant | : | : | : | : | : | : | | pleasant |
| hard | : | : | : | : | : | : | | soft |
| worthless | : | : | : | : | : | : | | valuable |

22. TASO

| good | : | : | : | : | : | : | | bad |
|------|---|---|---|---|---|---|---|-----|
| rough | : | : | : | : | : | : | | smooth |
| honest | : | : | : | : | : | : | | dishonest |
| passive | : | : | : | : | : | : | | active |
| fair | : | : | : | : | : | : | | unfair |
| weak | : | : | : | : | : | : | | strong |
| fast | : | : | : | : | : | : | | slow |
| unpleasant | : | : | : | : | : | : | | pleasant |
| hard | : | : | : | : | : | : | | soft |
| worthless | : | : | : | : | : | : | | valuable |

23. Performance Oriented Training is a new name for the same old thing.

| good | : | : | : | : | : | : | | bad |
|------|---|---|---|---|---|---|---|-----|
| rough | : | : | : | : | : | : | | smooth |
| honest | : | : | : | : | : | : | | dishonest |
| passive | : | : | : | : | : | : | | active |
| fair | : | : | : | : | : | : | | unfair |
| weak | : | : | : | : | : | : | | strong |
| fast | : | : | : | : | : | : | | slow |
| unpleasant | : | : | : | : | : | : | | pleasant |
| hard | : | : | : | : | : | : | | soft |
| worthless | : | : | : | : | : | : | | valuable |

Thank you for your participation.

41

76:5146-2

1 US ARMY WESTERN COMMAND   ATTN: APPE
1 DEPARTMENT OF THE NAVY   TRAINING ANALYSIS AND EVALUATION GROUP
1 HQDA   ATTN: DAAG-ED
1 HQ, ICATA   ATTN: ATCAT-OP-Q
2 HQDA   RESEARCH AND STUDIES OFC
1 MILITARY OCCUPATIONAL DEVELOPMENT DIV   DAPC-MSP-O, RM 852C HOFFMAN BLDG I
4 OASD (MRA AND L)
1 HQ TCATA   TECHNICAL LIBRARY
1 HQDA   ODCSPER
1 HQDA   ATTN: DAMI-ISI
1 USA AVIATION SYSTEMS COMD   ATTN: DRSAV-ZDR
1 USA CORADCOM   ATTN: AMSEL-PA-RH
1 HEADQUARTERS US MARINE CORPS   ATTN: CODE MTMT
1 HEADQUARTERS, US MARINE CORPS   ATTN: CODE MPI-20
2 US ARMY EUROPE AND SEVENTH ARMY
1 1ST INFANTRY DIVISION AND FT. RILEY   ATTN: AFZN-DPT-T
1 CHIEF, ATTITUDE + OPINION SURVEY DIVISION   ATTN: ATZI-NCR-MA, HOFFMAN BLDG II
1 USA INTELLIGENCE AND SECURITY COMMAND   ATTN: IAOPS-TNG-T
2 HQ TRADOC   TECHNICAL LIBRARY
1 NAVAL TRAINING EQUIPMENT CEN   ATTN: TECHNICAL LIBRARY
1 MILITARY OCCUPATIONAL DEVELOPMENT DIRECTORATE   ATTN: ATZI-NCR-MS-M, RM 3N33 HOFFMAN BLDG II
1 DATA ANALYSIS DIVISION   ATTN: ATZI-NCR-MD, HOFFMAN BLDG II
1 USA MILPERCEN   ATTN: DAPC-POO-T
1 8TH INFANTRY DIVISION
1 HQDA   ARMY FORCE MODERNIZATION COORDINATION OFFICE
1 HQDA   ATTN: DASG-PTB
1 123D USARCOM   RESERVE CENTER
1 US ARMY SOLDIER SUPPORT CENTER   ATTN: ATSG-HDD (DR. CAVINESS)
1 USA FORCES COMMAND   AFLG - DEPUTY CHIEF OF STAFF FOR LOGISTICS
1 US ARMY AIR DEFENSE SCHOOL   ATTN: ATSA-DTD
1 DIRECTORATE OF TRAINING   ATTN: ATZQ-T
1 DIRECTORATE OF COMBAT DEVELOPMENTS   ATTN: ATZQ-D
1 HQDARCOM   MARINE CORPS LIAISON OFC
1 DEPARTMENT OF THE ARMY   US ARMY INTELLIGENCE + SECURITY COMMAND
1 USA MISSILE COMMAND   ATTN: DRSMI-NTN
1 ARTADS   ATTN: DRCPM-TDS-TD
1 USA FORCES COMMAND
1 PM TRADE /
1 US MILITARY DISTRICT OF WASHINGTON   OFC OF EQUAL OPPORTUNITY
1 NAVAL CIVILIAN PERSONNEL COMD   SOUTHERN FLD DIV
22 ARI LIAISON OFFICE
1 7TH ARMY TRAINING COMMAND
1 ARMY TRAINING SUPPORT CENTER   INDIVIDUAL TRAINING EVALUATION
1 HQDA, DCSOPS   INDIVIDUAL TRAINING
1 HQDA, DCSOPS   TRAINING DIRECTORATE
1 HQDA, DCSLOG   MAINTENANCE MANAGEMENT
1 HQDA, OCS   STUDY OFFICE
1 U.S. NAVY   TRAINING ANALYSIS EVALUATION GROUP
1 USACDEC   ATTN: ATEC-EX-E HUMAN FACTORS
1 ATTN: SM-ALC/DPCR
1 USAFAGOS/TAC   SENIOR ARMY ADVISOR
1 INTER-UNIV SEMINAR ON ARMED FORCES + SOC
1 OASA (RDA)   DEPUTY FOR SCIENCE AND TECHNOLOGY
1 OFC OF NAVAL RESEARCH /
1 AFHRL/LRT
1 AFHRL/LRLG
1 AIR FORCE HUMAN RESOURCES LAB   ATTN: AFHRL/TSR
1 AFAMRL/BB
1 NAVY PERSONNEL R AND D CENTER   DIRECTOR OF PROGRAMS
1 NAVY PERSONNEL R AND D CENTER /
2 OFC OF NAVAL RESEARCH   PERSONNEL AND TRAINING RESEARCH PROGRAMS

43

1 NAVAL PERSONNEL R + D CENTER /
1 OFC OF NAVAL RESEARCH  PROJECT OFFICER, ENVIRONMENTAL PHYSIOLOGY
1 MCFANN-GRAY + ASSOCIATES, INC. /
1 NAVAL AEROSPACE MEDICAL RSCH LAB  AIRBORNE RANGER RESEARCH
1 DEPT. OF NATIONAL DEFENCE  DEFENCE AND CIVIL INSTITUTE OF ENVIR MED
1 NAVAL AEROSPACE MEDICAL RSCH LAB  AEROSPACE PSYCHOLOGY DEPARTMENT
1 USA TRADOC SYSTEMS ANALYSIS ACTIVITY  ATTN: ATAA-TCA
1 HEADQUARTERS, COAST GUARD  CHIEF, PSYCHOLOGICAL RSCH BR
1 USA RESEARCH AND TECHNOLOGY LAB  ATTN: DAVDL-AS (DR. R. S. DUNN)
1 USA MOBILITY EQUIPMENT R AND D COMD  ATTN: DRDME-TQ (SCHOOL)
1 NIGHT VISION LAB  ATTN: DRSEL-NV-SDD
1 USA TRAINING BOARD  ATTN: ATTG-ATB-TA
1 USA MATERIEL SYSTEMS ANALYSIS ACTIVITY  ATTN: DRXSY-C
1 NAFEC  HUMAN ENGINEERING BRANCH
1 BATTELLE-COLUMBUS LABORATORIES  TACTICAL TECHNICAL OFC
1 USA ARCTIC TEST CEN  ATTN: AMSTE-PL-TS
1 USA COLD REGIONS TEST CEN  ATTN: STECR-OP
1 DEFENSE LANGUAGE INSTITUTE  FOREIGN LANGUAGE CEN
1 HQ WRAIR  DIV OF NEUROPSYCHIATRY
1 USA ELECTRONIC WARFARE LAB  CHIEF, INTELLIGENCE MATER DEVEL + SUPP OFF
1 USA RSCH DEVEL + STANDARDIZA GP, U.K.
1 AFWAL/FIGR (CDIC)
1 USA RESEARCH AND DEVELOPMENT LABS  CHIEF, BEHAV SCIENCES DIV, FOOD SCI LAB
1 NAVAL AIR SYSTEMS COMMAND  ATTN: AIR-5313
1 USACDEC  TECHNICAL INFORMATION CENTER
1 USAARL LIBRARY
1 HUMAN RESOURCES RSCH ORG (HUMRRO)  /
1 SEVILLE RESEARCH CORPORATION
1 USA TRADOC SYSTEMS ANALYSIS ACTIVITY  ATTN: ATAA-SL (TECH LIBRARY)
1 UNIFORMED SERVICES UNIT OF THE HEALTH SCI  DEPARTMENT OF PSYCHIATRY
1 HUMAN RESOURCES RSCH ORG (HUMRRO)
1 HUMRRO  LIBRARY
1 BATTELLE  REPORTS LIBRARY
1 RAND CORPORATION  ATTN: LIBRARY D
1 GRONINGER LIBRARY  ATTN: ATZF-RS-L BLDG 1313
1 CENTER FOR NAVAL ANALYSIS
1 NAVAL HEALTH RSCH CEN  LIBRARY
1 NAVAL PERSONNEL R AND D CEN LIBRARY  ATTN: CODE P106
1 AIR FORCE HUMAN RESOURCES LAB  ATTN: AFHRL/OTS
1 HQ, FT. HUACHUCA  ATTN: TECH REF DIV
1 USA ACADEMY OF HEALTH SCIENCES  STIMSON LIBRARY (DOCUMENTS)
1 SCHOOL OF SYSTEMS AND LOGISTICS /
1 ERIC PROCESSING AND REFERENCE FAC  ACQUISITIONS LIBRARIAN
1 DEPARTMENT OF THE NAVY  TRAINING ANALYSIS AND EVALUATION GP
1 NATIONAL CENTER FOR HEALTH STATISTICS /
1 USMA  DEPT OF BEHAVIORAL SCI AND LEADERSHIP
1 OLD DOMINION UNIVERSITY  PERFORMANCE ASSESSMENT LABORATORY
1 USA COMMAND AND GENERAL STAFF COLLEGE  ATTN: LIBRARY
1 USA TRANSPORTATION SCHOOL  USA TRANSP TECH INFO AND RSCH CEN
1 NMRDC  PROGRAM MANAGER FOR HUMAN PERFORMANCE
1 USA ADMINCEN  TECHNICAL RESEARCH BRANCH LIBRARY
1 USA FIELD ARTY BD /
1 NAT CLEARINGHOUSE FOR MENTAL HEALTH INFO  PARKLAWN BLDG
1 U OF TEXAS  CEN FOR COMMUNICATION RSCH
1 INSTITUTE FOR DEFENSE ANALYSES
1 USA TRAINING SUPPORT CENTER  ATTN: ATIC-DST-PA
1 AFHRL  TECHNOLOGY OFC (H)
1 PURDUE UNIV  DEPT OF PSYCHOLOGICAL SCIENCES
1 USA MOBILITY EQUIPMENT R AND D COMMAND  ATTN: DRDME-ZG
1 DA US ARMY RETRAINING BDE  RESEARCH + EVALUATION DIVISION
1 ESSEX CORPORATION  ATTN: DR. BOB WATERS
1 HAZELTINE CORPORATION  ATTN: DR. STONE

44    60

1 USA AEROMEDICAL RESEARCH LAB  SCIENTIFIC INFORMATION CENTER
1 RAYTHEON SERVICE COMPANY  SPENCER LABORATORY
1 HUMAN RESOURCE MANAGEMENT CEN, SAN DIEGO
1 USAFA  DEPT OF BEH SCI + LEADERSHIP
1 US MILITARY ACADEMY  DEPT. OF HISTORY, BLDG 601
1 USA INTELLIGENCE CEN AND SCH  ATTN: SCHOOL LIBRARY
1 USA INTELLIGENCE CEN AND SCH  ATTN: ATSI-DT-DL
1 MARINE CORPS INSTITUTE
1 NAVAL SAFETY CENTER  /
1 US COAST GUARD TNG CEN  ATTN: EDUCATIONAL SVCS OFFICER
1 USAAVNC AND FT. RUCKER  ATTN: ATZQ-ES
1 US ARMY AVN TNG LIBRARY  ATTN: CHIEF LIBRARIAN
1 USA AIR DEFENSE SCHOOL  ATTN: ATSA-DT
1 USAAVNC  ATTN: ATZQ-D
1 US MILITARY ACADEMY  DIRECTOR OF INSTITUTIONAL RSCH
1 USAADS-LIBRARY-DOCUMENTS
1 USA SERGEANTS MAJOR ACADEMY  ATTN: LEARNING RESOURCES CENTER
1 USA INFANTRY BOARD  ATTN: ATZB-IB-AE
1 USA INTELLIGENCE CEN AND SCH  ATTN: ATSI-DOTD-SF
1 USA ORDNANCE CEN AND SCH  ATTN: ATSL-TD-TAC
1 USA ARMOR SCHOOL  ATTN: ATZK-TD
1 USA ARMOR CENTER  DIRECTORATE OF COMBAT DEVELOPMENTS
1 NAVAL POSTGRADUATE SCH  ATTN: DUDLEY KNOX LIBRARY (CODE 1424)
1 USA TRANSPORTATION SCHOOL  DEPUTY ASST. COMMANDANT EDUCA. TECHNOLOGY
1 USA SIGNAL SCHOOL AND FT. GORDON  ATTN: ATZH-ET
1 USA QUARTERMASTER SCH  ATTN: ATSM-TNG-TM-ET
1 USA MILITARY POLICE SCHOOL  ATTN: LIBRARY
1 USA ARMOR CENTER + FT. KNOX  OFFICE OF ARMOR FORCE MGT + STANDARDIZATION
1 CHIEF OF NAVAL EDUCATION AND TNG  /
1 USA SIGNAL SCHOOL + FT. GORDON  EDUCATIONAL TECHNOLOGY DIVISION
1 HQ ATC/XPTD  TRAINING SYSTEMS DEVELOPMENT
1 USA INSTITUTE FOR MILITARY ASSISTANCE  ATTN: ATSU-TD-TA
1 US ARMY ARMOR CENTER  ATTN: ATZK-TD-PMO
1 USA AIR DEFENSE CENTER, FT. BLISS  ATTN: ATZC-DIM
1 USA QUARTERMASTER SCHOOL  DIRECTORATE OF TRAINING DEVELOPMENTS
1 US COAST GUARD ACADEMY  /
1 USA TRANSPORTATION SCHOOL  DIRECTORATE OF TRAINING + DOCTRINE
1 USA INFANTRY SCHOOL LIBRARY  /
1 USA INFANTRY SCHOOL  ATTN: ATSH-I-V
1 US ARMY INFANTRY SCHOOL  ATTN: ATSH-CD
1 USA INFANTRY SCHOOL  ATTN: ATSH-DOT-LRD
1 USA INFANTRY SCHOOL  ATTN: ATSH-EV
1 USA MP + CHEM SCH/TNG CEN + FT. MCCLELLAN  ATTN: ATZN-PTS
1 USA MP + CHEM SCH/TNG CEN + FT. MCCLELLAN  DIR: COMBAT DEVELOPMENT
1 USA MP + CHEM SCH/TNG CEN + FT. MCCLELLAN  DIR: TRAINING DEVELOPMENT
1 USA MP + CHEM SCH/TNG CEN + FT. MCCLELLAN  ATTN: ATZN-MP-ACE
1 USA INSTITUTE OF ADMINISTRATION  ATTN: RESIDENT TRAINING MANAGEMENT
1 USA FIELD ARTILLERY SCHOOL  MORRIS SWETT LIBRARY
1 USA INSTITUTE OF ADMINISTRATION  ACADEMIC LIBRARY
1 USA WAR COLLEGE  ATTN: LIBRARY
1 USA ENGINEER SCHOOL  LIBRARY AND LEARNING RESOURCES CENTER
1 USA ARMOR SCHOOL (USARMS)  ATTN: LIBRARY
1 US COAST GUARD ACADEMY  LIBRARY
1 USA TRANSPORTATION SCHOOL  TRANSPORTATION SCHOOL LIBRARY
1 ORGANIZATIONAL EFFECTIVENESS CEN + SCH  ATTN: LIBRARIAN
1 US ARMY INTELLIGENCE CENTER + SCHOOL  ATTN: ATSI-TD
1 US ARMY INTELLIGENCE CENTER + SCHOOL  ATTN: ATSI-RM-M
1 US ARMY INTELLIGENCE CENTER + SCHOOL  ATTN: ATSI-DT-SF-IM
1 US MARINE CORPS  EDUCATION CENTER
1 USA FIELD ARTILLERY SCHOOL  DIRECTORATE OF COURSE DEV + TRAINING
1 DEPARTMENT OF THE AIR FORCE  AIR UNIVERSITY LIBRARY (ATC)
1 USA CHAPLAIN CENTER + SCHOOL  ATTN: ATSC-TD-OD

```
  1 USA CHAPLAIN CENTER + SCHOOL   ATTN: ATSC-TD-ED
  1 USA CHAPLAIN CENTER + SCHOOL   ATTN: ATSC-TD-SF
  1 USA CHAPLAIN CENTER + SCHOOL   ATTN: ATSC-DOS-LLC
  1 HQ TRADOC  TRAINING DEVELOPMENT INSTITUTE
  2 BRITISH EMBASSY  BRITISH DEFENCE STAFF
  2 CANADIAN JOINT STAFF
  1 CDLS (W) LIBRARY
  1 FRENCH ARMY ATTACHE
  1 AUSTRIAN EMBASSY  DEFENSE, MILITARY AND AIR ATTACHE
  3 CANADIAN DEFENCE LIAISON STAFF   ATTN: COUNSELLOR, DEFENCE R AND D
  1 ROYAL NETHERLANDS EMBASSY  MILITARY ATTACHE
  1 CANADIAN FORCES BASE CORNWALLIS  ATTN: PERSONNEL SELECTION
  2 CANADIAN FORCES PERSONNEL APPL RSCH UNIT
  1 ARMY PERSONNEL RESEARCH ESTABLISHMENT
  6 LIBRARY OF CONGRESS  EXCHANGE AND GIFT DIV
  1 DEFENSE TECHNICAL INFORMATION CEN   ATTN: DTIC-DDA-2
140 LIBRARY OF CONGRESS  UNIT DOCUMENTS EXPEDITING PROJECT
  1 US GOVERNMENT PRINTING OFC  LIBRARY, PUBLIC DOCUMENTS DEPARTMENT
  1 US GOVERNMENT PRINTING OFC  LIBRARY AND STATUTORY, LIB DIV (SLL)
  1 THE ARMY LIBRARY  ATTN: ARMY STUDIES SEC
  3 ROYAL ARMY EDUCATIONAL CORPS CENTRE  ARMY SCHOOL OF TRAINING SUPPORT
  1 /  /
```

NUMBER OF ADDRESSEES  207

TOTAL NUMBER OF COPIES 386