SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A114151	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) PROCEEDINGS OF THE TRADOC/TRAINING DEVELOPMENTS INSTITUTE FIFTH CHIEFS OF ANALYSIS SEMINAR		5. TYPE OF REPORT & PERIOD COVERED PERIODIC
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) OCCUPATIONAL RESEARCH & ANALYSIS DIVISION STAFF		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS TRAINING DEVELOPMENTS INSTITUTE ATTN: ATTG-DOR FORT MONROE, VA 23651		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS TRAINING DEVELOPMENTS INSTITUTE ATTN: ATTG-DOR FORT MONROE, VA 23651		12. REPORT DATE 30 September 1981
		13. NUMBER OF PAGES 214
14. MONITORING AGENCY NAME & ADDRESS(If different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

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)

FRONT END ANALYSIS (FEA)   EVALUATION/ANALYSIS
JOB ANALYSIS
TASK ANALYSIS
LEARNING ANALYSIS
CRITICAL TASK SELECTION

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
The proceedings represent the presentations made at the Fifth TRADOC Chiefs of Analysis Seminar held at the Motor House Inn, Williamsburg, VA; 24-27 February 1981. The major theme of this seminar was Alternative Approaches to Front End Analysis (FEA)--the Schools and the Technologists. The purpose of this seminar was to provide a forum to address training analysis issues, to consider the current state-of-the-art activities within front end analysis/performance technologies, to resolve problems within the TRADOC community attendant to each, and to allow service school chiefs of analysis to interact with the ORAD staff (TRADOC proponent for front end analysis policy and training).

DD FORM 1473 1 JAN 73   EDITION OF 1 NOV 65 IS OBSOLETE

DISCLAIMER NOTICE

**THIS DOCUMENT IS BEST QUALITY
PRACTICABLE. THE COPY FURNISHED
TO DTIC CONTAINED A SIGNIFICANT
NUMBER OF PAGES WHICH DO NOT
REPRODUCE LEGIBLY.**

DEPARTMENT OF THE ARMY
TRAINING DEVELOPMENTS INSTITUTE
FORT MONROE VIRGINIA 23651

ATTG-DOR

30 September 1981

HQ TRADOC 5th CHIEFS OF ANALYSIS SEMINAR
24-27 February 1981
Williamsburg, Virginia

1. The 5th Chiefs of Analysis Seminar was held at the Cascade Meeting Center of the Motor House Inn in Colonial Williamsburg, VA from 24-27 February 1981. The theme of this seminar was: Alternative Approaches to Front-End Analysis (FEA) - the Schools and the Technologists.

2. The sponsor of this seminar was the Occupational Research and Analysis Division (ORAD) of the Training Developments Institute (TDI), Ft Monroe, VA 23651. The project officer/seminar coordinator was MSG Don Mitchell (telephone: AC (804) 727-3608, AUTOVON 680-3608).

3. The purpose of this seminar was to provide a forum to address training analysis issues, to consider the current state-of-the-art activities within front-end analysis/performance technologies, to resolve problems within the TRADOC community attendant to each, and to allow service school chiefs of analysis to interact with the ORAD staff (TRADOC proponent for front-end analysis policy and training).

4. Seminar presentations are summarized herein and copies of vu-graphs, hand-outs, etc., are provided as inclosures. Unless so indicated, the content of these presentations does not necessarily reflect official TRADOC views on the subject. The intent of the seminar was to permit the service schools and invited speakers to present their opinions on varied subjects and solicit feedback to better our analysis efforts.

5. The agenda is attached as Incl 1. A list of attendees is at Incl 2.

6. **Executive Summary of the Proceedings.**

    a. Welcoming/Opening Remarks. MSG Mitchell opened the schedule with a brief presentation and an introduction of COL Nerone, Director, Training Developments Institute, who in turn, introduced BG Galvin, Assistant Deputy Chief of Staff for Training. BG Galvin in his official opening remarks chartered the conferees to openly discuss the problems concerning them and offered a brief overview of the current TRADOC philosophy concerning a systematic approach to training (SAT). In closing, he advised conferees that he would return on the last day of the seminar to hear, firsthand,

what they perceived to be the issues currently confronting those involved with training analysis.

b. Theme Presentation. After MSG Mitchell's announcement of the central theme, CPT Tarr and he offered a brief explanation and comparison of the terms, "Front-End Analysis" (FEA) and "Job and Task Analysis" (JTA). Generally, JTA is perceived as a three step process of Job Analysis, Task Analysis, and Critical Task Selection; whereas, FEA (a five step process), begins with a Needs Assessment/Analysis and concludes with construction of Job Performance Measures (JPM). CPT Tarr delved a little more deeply into JPM and its relationship to training/learning objectives and the necessity to minimize variations between same in order to obtain student mastery of the specific tasks. MSG Mitchell then offered an experiential view of how to go about determining and resolving performance deficiencies and the root causes thereof (needs analysis). It was emphasized that <u>training is not always the answer</u>. The brevity code TINATA was "coined" for this purpose. Performance problems are caused by any one or a combination of environmental, motivational, incentive or attitudinal factors and/or training deficiencies.

c. IPISD: <u>A</u> Model (Dr. Robert K. Branson, Director, Center for Educational Technology, Florida State University and prime author of the Interservice Procedures for Instructional Systems Development (IPISD)). The original goals and parameters for the ISD models were outlined by Dr. Branson. He noted that it was not designed to be a panacea for all performance or even all training problems. Particular attention was directed to its relationship to the TRADOC school model at the time of its inception.

d. ETAP: Another Look (CPT Tarr). Another look at the Extended Task Analysis Procedure (ETAP) was offered by CPT Tarr. In an audio/video presentation developed by Dr. M. David Merrill, University of Southern California (co-author under SSP contract with Dr. Charles M. Reigeluth, Syracuse University), CPT Tarr presented the applicability of the ETAP model to those skills and knowledges often generalized as "soft skills." Then, in a more direct manner, reinforced ETAP utility within the TRADOC service schools by offering supportive validation data/results. This model/ technique then became the second viable model presented at this seminar.

e. SC 28, WO and Enl SQI. (MAJ Collins, SFTD, TDI) A brief overview of the current status of the SC 28 development, alignment, and implementation was offered. Discussions were held concerning the scope, acquisition method(s), and parameters of these management indicators. Limited information was provided on the WO and NCO training development additional/ special skill identifiers. Conferees emphasized their desire for educational/ instructional technologists rather than generalist in all ranks.

f. Analyst Training Requirements. (LTC Raymond, C, SFTD, TDI) LTC Raymond provided conferees an overview of the staff and faculty development efforts underway including the Senior Managers Course, J&TA Workshop,

2

etc. He then solicited comments from the floor regarding the "needs" as perceived by the conferees.

    g. Miscellaneous ORAD Updates (CPT Tarr, Mr. Silverberg, and MSG Mitchell), Conferees were provided data on the following topics:

    (1) A Systematic Approach to Training (SAT). Conferees were advised that TRADOC had taken a more generic approach to achieving its ultimate goals of training mastery; that there were scores of techniques, models, etc., which could be employed; that a new regulation (350-XX) would be published sometime this summer; and that this regulation would regulate deliverables only--not the process.

    (2) The Individual Training Plan Proposal (ITPP) program and ORAD's involvement in it was presented. Those present were cautioned to be sure they affixed properly completed Job/Task Analysis Plans whenever possible. Failing that, the specific requirements for approval were delineated. References were given to TRADOC Reg 351-4, Circular 351-3, and to TRADOC letter, ATTG-T, 20 Oct 80, dealing with common problems in ITPP submissions.

    (3) The current status of TRADOC Pam 351-4(T) (JTA Handbook) and other documents, including the JTA Workshop and Job Aid (Pam 351-6), were discussed. Comments from the gathering were solicited.

    (4) An update of the Life Cycle System Management Process and its relationship to individual task analysis was provided.

    (5) The current efforts to interface Individual/Collective Analysis were reported on. Attendees were advised that ORAD had a representative (CPT Tarr) on the ATSC task force charged with that mission. Chiefs were asked to make the collective (ARTEP) tasks a basis of their Job Analysis efforts.

    (6) Future and/or contemplated ORAD endeavors, including a proposal to bridge the gap between the service school senior managers and the analysis staffs by use of an "Executive Summary for Analysis," were offered for consideration/information.

    h. A reception was held for all participants from 1800-1900, 24 Feb 81. Invited speakers, all distinguished within their fields of the Systematic Approaches to training, were introduced to participants.

    i. On Wednesday, 25 Feb 81, the format switched to technologist presentations. Each invited speaker/technologist was allowed 45 minutes to present his perspective of an alternative approach to analysis. These speakers, Dr. Frances Mechner, Dr. Lyle Spencer, Dr. Joe Harless, and Dr. Roger Kaufman, offered informative, job relevant views on a particular aspect of the systems approach to training. Dr. Mechner (President of

3
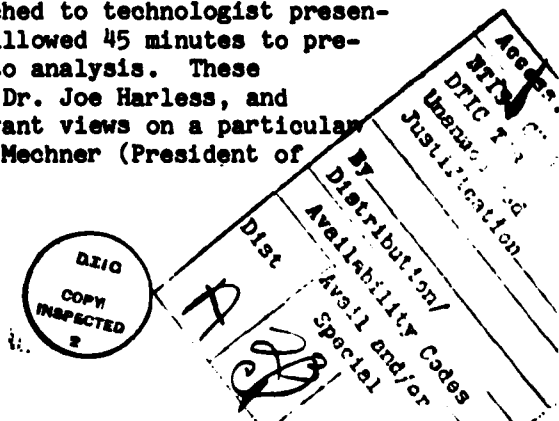
Behavior Science Applications, Inc.) highlighted the "BSA Model" with
emphasis on Steps 1-7 of the 20 step approach (see Incl 3). Dr. Spencer,
Vice President, McBer & Co., delivered a presentation on the "Job Competency
Assessment (JCA) Model," being employed in a current contractual arrange-
ment with the US Navy (see Incl 4). In his presentation he referred to an
article entitled, "The New Competency Tests: Matching the Right People to
the Right Jobs," from the Jan 81 issue of Psychology Today (not provided
herewith due to copyright restriction). Dr. Joe Harless, President,
Harless Performance Guild, Inc., followed with a summary of his Diagnostic
and Planning FEA Models (Incl 5) in which he emphasized the variables bet-
ween the two FEA models: diagnostic for existing online systems and plan-
ning for new or anticipated systems. Considerable time was spent examining
causes of performance problems. Dr. Roger Kaufman, Director of the Center
for Needs Analysis and Planning, Florida State University, concluded the
presentations with his synoposis of theory concerning needs assessment
(Incl 6).

j. The afternoon was spent in round robin sessions hosted by the
respective technologists and members of the ORAD staff. Attendees were
provided an opportunity to conduct small group discussions with the
speakers in which specific queries could be addressed. The most often
heard questions dealt with implementation of the various approaches in the
military environment. At the conclusion of the round robin, the ORAD staff
members summarized the sessions they cohosted.

k. Thursday, 26 Feb 81, started with presentations from selected ser-
vice schools discussing their approach to FEA. The first presenter,
MAJ Miles Nakashima, USAIS, addressed the Infantry/Review of Education and
Training for Officers philosophy/procedures for Analysis. In his talk he
emphasized that the USAIS had managed to utilize IPISD procedures with
little or no deviation. He recognized that this was not commonly practical
but had resulted in a viable analysis in their case (LTC Evans, Sill, Incl
7). CPT Sims and MAJ Rock, USAOECS, wrapped up the school presentations
with a look at the recently concluded efforts of McBer and Co., in effecting
JCA in the Organizational Effectiveness Area (Incl 8). Dr. Brown of the
ORAD staff then facilitated a question and answer session in which school
representatives could seek out specifics, lessons learned, etc., from the
school presenters.

l. Mr. Worstein, USASSC-NCR, then provided an update/overview of
the Army Occupational Survey Program (AOSP) (Incl 9). This session was
followed by CPT Tarr facilitating a period entitled; "Your Views on
AOSP." The results of the session were lists of systemic "debits" and
"credits."

    a. "DEBITS"

        (1) Not capable of processing classified
        (2) Too long; too many items

           (3) Excessive lead-time requirements
           (4) Training criteria not used
           (5) Redundancy
           (6) Creditability - field input
           (7) Broad scope
           (8) Low return rate
           (9) Scale confusion/misunderstanding

       b. "CREDITS"

           (1) NCR responsiveness
           (2) Objectivity
           (3) Empirical data base
           (4) Target Population Demographics
           (5) Data manipulation

No attempt was made to discuss any of the points listed above. Mr. Worstein recorded same and promised to consider the information in an effort to alleviate further systemic problems.

    m. LTC Pilgrim and MSG Mitchell divided the participants into work/ discussion groups for the purpose of discussing matters relevant to FEA in the service schools. Discussion Group Leaders were appointed and each was assigned a primary topic (see Incl 10). All groups were chartered to discuss the additional topics of FEA vs JTA and Systems Approach to Training (SAT). At a brief meeting with Group Leaders, all were told to arrive at topic consensus and prepare a 20-30 minute briefing highlighting that consensus (the briefings to be given to BG Galvin on Friday morning, 27 Feb 81). This program was scheduled because of repeated comments from participants at past seminars indicating a desire to present their points of view concerning the TRADOC training system. ORAD scheduled these sessions to direct communication between DCST senior officers and the service school Chiefs of Analysis. ORAD staff members monitored the discussions but did not provide input to avoid biasing discussions on Analysis problems.

    n. The agenda item entitled "Analysis Data Management," was reduced to 10 minutes in order to accommodate a presentation by Ms. Alice Frappoli on the Training Development Information System (TDIS).

    (1) In the Analysis Data Management segment, Mr. Silverberg led a short discussion concerning handling, storage, and retrieval of the millions of bits of analysis data being gathered in our service schools. Mr. Silverberg suggested word processing equipment be considered as a possible alternative to computerization. In short, participants were asked to consider automation of the data bank and to discuss it at an upcoming seminar or other forum (see Incl 11).

(2) Ms. Frappoli provided an overview of the current status of implementing TDIS within the TRADOC. At the time of her presentation, efforts were being made to initiate the system through the RETO effort-- putting officer tasks/data into the system first. Overall milestones, system objectives, and anticipated procedures were orated.

o. Participant topic briefings (see para 6m, above) were given to the ADCST and the Director, TDI by presenters selected by their respective groups. The following is a brief synopsis of the comments:

(1) <u>FEA vs JTA.</u> FEA is natural extension of JTA and requires additional resources. The area of needs assessment and needs analysis should have been addressed long ago. Construction of performance measures also will get more emphasis under a broadened analysis scope. It definitely should be a part of SAT (Incl 12).

(2) <u>SAT.</u> Improvement over regulatory/strict IPISD adherence. Offers more flexibility. Must be generic and provide a lot of "what" to do. Needs to eliminate some of the conflict between existing policy guidance, redundancies, and ambiguities now plaguing the system. Schools should be allowed to generalize between methods, procedures, or select the one best suiting their needs. Should become "gospel" (see Incl 13).

(3) <u>Models.</u> Sufficient commercial and/or Army prepared models available. Need guidance in "how to select best (most appropriate) model for the specific job." ORAD and/or SFTD should provide matrix or other aid to facilitate "how to select...."

(4) <u>Analyst Training.</u> The analyst training available is better than any other ISD phase training. Could use improvement/update. FEA specific training required. SC 28, WO, NCO Specialty/MOS identification MANDATORY. Generalization into SC 54 not favorable to training developers. Generalization of model training desirable. Use several alternative means of Analyst training (see Incl 14).

(5) <u>Data Management.</u> Volume of data requires some sort of system to manage it effectively. Automation/computerization is expensive - BUT NECESSARY. Special TD ADP Seminar recommended (see Incl 15).

p. BG Galvin responded to the school briefings by assuring those present that due consideration would be given to their remarks. He indicated he had been somewhat overwhelmed by their comments in that they would necessitate extensive staff research and coordination. In view of the complexity of the problems presented, he indicated he could not promise solutions but could assure those present a fair evaluation of their perspectives. COL Nerone added his remarks to those of the ADCST by rededicating the TDI to their tasks of furthering the state-of-the-art technology within the TRADOC and providing technological expertise to the service schools.

6

q. MSG Mitchell adjourned the seminar at 1200, 27 Feb 81, by
thanking all participants, particularly General Galvin and the presenters,
for their time and efforts. A challenge was rendered to all: Be prepared
to be asked at some future date what you (and/or your school) has done to
implement what was discussed/learned at Williamsburg. Our seminar, like
any traditional training, only pays dividends when there has been transfer
to job. All were asked to "take their 'stuff' home--not to leave it in
Colonial Williamsburg."

DONALD L. MITCHELL
MSG
Seminar Project Officer

19 Incl   MARK T. PILGRIM
1-15 as   LTC, AR
16. Training West brochure Chief, Occupational Research and
17. Article: The Cross-Training Analysis Division
     of Subject Matter Experts
     and Instructional Technology
18. Paper: Task Analysis - A
     Survey of Procedures and
     Products
19. Occasional Paper No. 16,
     Relating Needs Assessment,
     Program Development,
     Implementation, and
     Evaluation (Kaufman)

INCL 1

TITLE: AGENDA
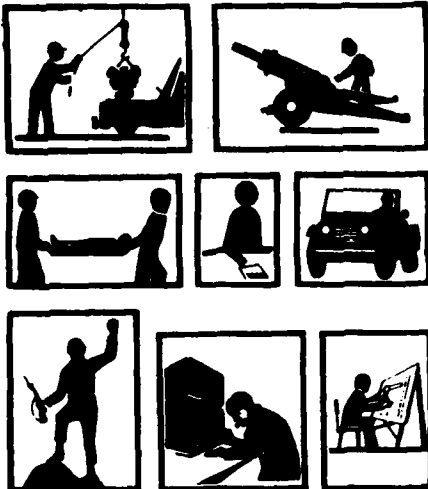
AGENDA

FIFTH CHIEFS OF ANALYSIS SEMINAR

24 - 27 FEBRUARY 1981

THEME: Alternative Approaches to Front-End Analysis - Yours and the Technologists!

SCHEDULED TOPICS: The following topics will be addressed:

- Front-End Analysis (FEA) vs. Job/Task Analysis or why we need to expand our horizons.

- IPISD: What it was meant to be - what it does.

- Extended Task Analysis Procedures (ETAP) - another look!

- Analyst training needs.

- SC 28, Warrant ASI, Enlisted SQI for Training Developers.

- Analysis Models/Techniques:

    ● Those of the technology leaders and

    ● Those of our schools.

- CODAP: Why, what and how - an interface with SSC.

- Management of analysis data - a look at the future.

- Miscellaneous updates:

    ● A systematic approach to training (SAT).

    ● The ITPP process as it relates to analysis.

    ● Status of Pam 351-4(T) and other ORAD "stuff".

    ● Individual/Collective Analysis Interface.

    ● Future ORAD projects.

Time	Event	Speaker	Location
0700-1000	Registration		Cascade Foyer
0800	Welcome	LTC Pilgrim COL Nerone BG(P) Galvin	Council Room
0830	Agenda and Theme Presentation	MSG Don Mitchell	Council Room
0845	FEA vs. JTA	CPT Ron Tarr MSG Mitchell	Council Room
0915-0945	Introductory Coffee		Cascade Foyer
0945	IPISD: A model	Dr. Robert Branson FSU	Council Room
1145-1300	Lunch		
1300	ETAP: Another look	CPT Tarr	Council Room
1345	SC 28, WO ASI, Enl SQI	MAJ Ken Collins SFTD(TDI)	Council Room
1415-1430	Break		
1430	Analyst training requirements	Dr. Larry Brown LTC Dan Raymond	Council Room
1530	Misc OR&AD Updates Updates	Our staff	Council Room
1630	Adjournment		
1800-1900	Reception		Cascade II

1

WEDNESDAY, 25 February 1981

Time	Topic	Speaker	Location
0800	Agenda Review	MSG Mitchell	Cascades Room
0805	The BSA Model	Dr. Frances Mechner, Pres., Behavior Science Applic., Inc.	Cascades Room
0845	Job Competency Assessment (JCA) Model	Lyle Spencer, Vice Pres., McBer & Co.	Cascades Room
0930	Break		
1000	Diagnostic and Planning FEA	Joe Harless, Harless Performance Guild, Inc.	Cascades Room
1045	Needs Assessment	Roger Kaufman, Dir, Cen for Needs Assessment, FSU	Cascades Room
1130	Round-Robin Intro	MSG Mitchell	Cascades Room
1145-1300	Lunch		
1300-1600	Round-Robin	See Attachment	
1600	Round-Robin Summary	OR&AD staff	Cascades Room
1630	Adjournment		

THURSDAY, 26 February 1981

0800	Agenda Review	MSG Mitchell	Cascades Room
0805	School Presentation: Inf (RETO)	MAJ Miles Nakashima	Cascades Room
0845	School Presentation: Field Artillery	LTC John Evans	Cascades Room
0930	Break		
1000	School Presentation: OETC	CPT Ron Sims	Cascades Room
1045	School Panel (Q&A)	Dr. Larry Brown Facilitator	Cascades Room
1130-1300	Lunch		
1300	CODAP/AOSP: What, Why & How	Dr. Darrell Worstein SSC - NCR	Cascades Room
1330	Your views on CODAP/AOSP	Dr. Brown Facilitator	Cascades Room
1415	Break		
1430	Your views... continued	Dr. Brown Facilitator	Cascades Room
1500 thru 2100	Work Group Sessions (Optional Tour of CW)	LTC Pilgrim Appointed Gp Ldrs	Cascades Room

FRIDAY, 27 February 1981

0800	Agenda Review	MSG Mitchell	Cascades Room
0805	Analysis data management	LTC Pilgrim	Cascades Room
0900	Break		
0930	Briefings for ADCST/ Dir, TDI	TO BE ANNOUNCED	Cascades Room
1200	Wrap-Up/Adjournment	MSG Mitchell LTC Pilgrim	Cascades Room

HAVE A SAFE JOURNEY HOME!

ROUND-ROBIN SCHEDULE

During the round-robin sessions with the technologists, please follow the below schedule.

REMEMBER: SESSIONS LAST 30 MINUTES!

	Mechner Council 1	Spencer Council 2	Harless Cascade 1	Kaufman Cascade 2
1300-1330	SSC	LOGC	CAC	Misc.
1345-1415	Misc.	SSC	LOGC	CAC
1430-1500	CAC	Misc.	SSC	LOGC
1515-1545	LOGC	CAC	Misc.	SSC

There will be 15 minute breaks between all sessions.

1600 SUMMARY: Cascade I and II

Conference Level
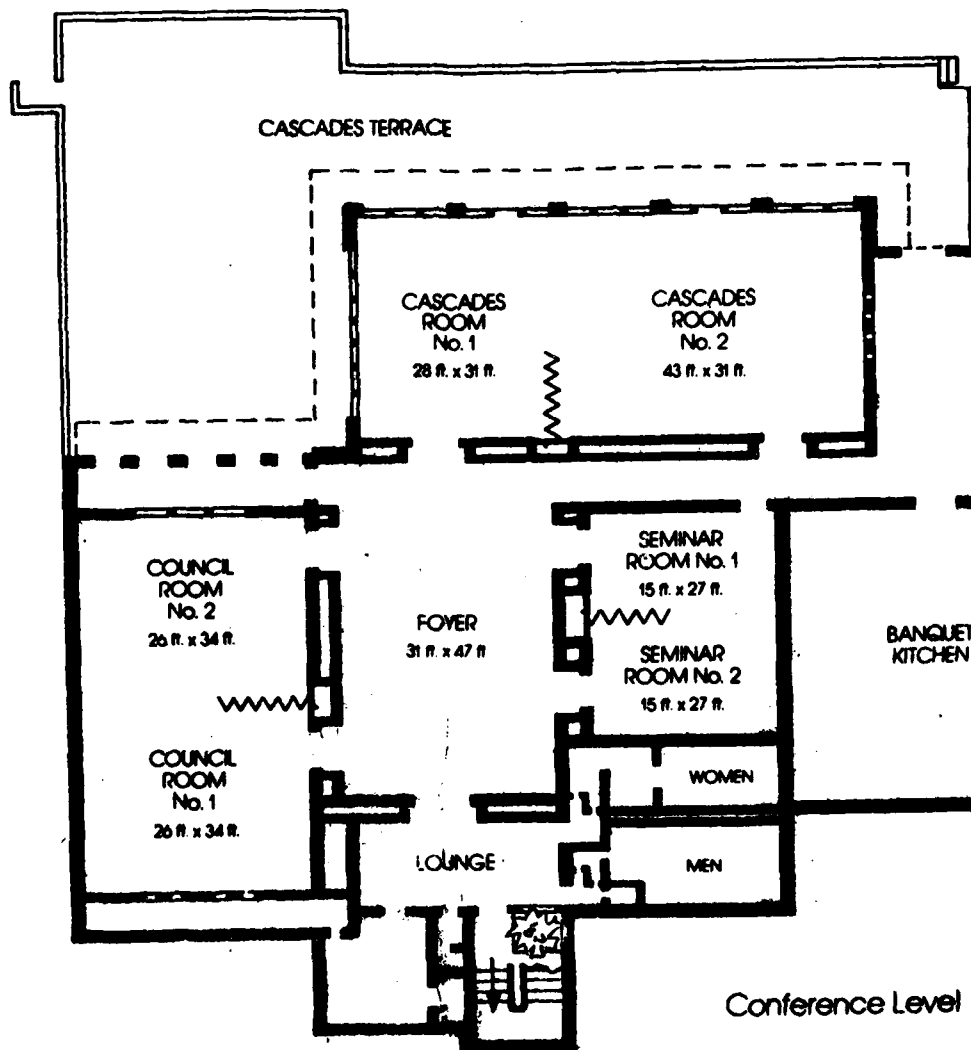
INCL 2

TITLE: ATTENDEES

ATTENDEES-FIFTH CHIEFS OF ANALYSIS SEMINAR

24-27 FEBRUARY 1981

NAME	GRADE	POSITION TITLE	MAILING ADDRESS/TELEPHONE
Aegerter, Garth E.	SFC	NCOIC Analysis Branch	USAADS, ATTN: DTD, Ft Bliss, TX 79916 TEL: AV 987-7739
Ainsworth, Jack L.	GS-11	Sr Educ Spec	USA ENGR SCH, ATTN: ATZA-TD, Ft Belvoir 22060 TEL: AV 354-3112/2512
Belanus, Terry	CPT	Proj Off	Army Trng Bd, USATSC, ATTN: ATTC-ATB-TA, Ft Eustis, VA 23604 TEL: AV 927-4658
Bergman, Joseph A.	GS-12	Occ Psych	AHS, ATTN: HSA-TIA, Ft Sam Houston, TX 78234 TEL: AV 471-3144/5949
Bolin, Stanley F.	GS-15	C, Tng Eval Research Team	USARI, ATTN: PERI-II, 5001 Eisenhower Ave., Alexandria, VA 22333 TEL: AV 284-8964
Brady, John B.	GS-12	C, Qual Ctl, Enl Tng Div	USASSC, ATTN: ATSG-TD-E, Ft Benjamin Harrison, IN 46216 TEL: AV 699-4311
Bridgeman, Huey A.	LTC	C, Off Dev Div	USA CHAP SCH, ATTN: ATSC-TD-OD, Ft Monmouth, NJ 07703 TEL: AV 992-3546/3287
Brittain, Clay V.	GS-14	ORSA	USATC, ATTN: ATIS-SM-SE, Ft Eustis, VA 23604 TEL: AV 927-5332
Burk, Garry A.	SFC	C, Res Tng	USA SCH OF MUSIC, ATTN: ATTNG-OTD, Little Creek, VA 23521
Chippendale, Joan T.	GS-11	Educ Spec	OFF TNG SYS DIV, TNG DEV INST, Ft Monroe, VA 23651 TEL: AV 680-3211
Cooper, Clarence C.	MAJ	C, Off Tng Br	AHS, ATTN: HSA-TII, Ft Sam Houston, TX 78234 TEL: AV 471-5335/5271
Collins, Kenneth R.	MAJ	Staff Off	STF&FAC TNG DIV, TNG DEV INST, Ft Monroe, VA 23651 TEL: AV 680-4260

In-17

2-1

NAME	GRADE	POSITION TITLE	MAILING ADDRESS/TELEPHONE
Craig, James M.	LTC	Dep Dir, Tng Dev	USA CHAP SCH, ATTN: ATSC-TD-O, Ft Monmouth, NJ 07703 TEL: AV 992-3613/3742
Crick, Paul O.	GS-13	C, C&E Maint Br, TAD	USA SIG SCH, ATTN: ATZHTD-A-CM, Ft Gordon, GA 30905 TEL: AV 780-3514
Dalton, William F.	Civ	Contractor Rep	DATA DESIGN LABS (NORFOLK), P.O. BOX 12773, Norfolk, VA 23502 TEL: AC (804) 461-1158
Daniels, James W.	MAJ	C, Enl Tng Dev Div	USA CHAP SCH, ATTN: ATSC-TD-ED, Ft Monmouth, NJ 07703 TEL: AV 992-5635
Davis, Andrew	GS-12	Educ Spec	USA TRANS SCH, Ft Eustis, VA 23604 TEL: AV 927-5060/4113
Davis, Larry W.	SFC	C, Ext Tng	USA SCH OF MUSIC, ATTN: ATTNG-DTD, Little Creek, VA 23521
Davison, Jaquelin	CPT	Proj Off	USA AVN SCH, ATTN: ATZQ-TD-TAD (SC15), Ft Rucker, AL 36362 TEL: AV 598-6703/67094
DiEduardo, Joseph A.	LTC	C, Off Tng Div	USASSC, ATTN: ATZI-TD-OT, Ft Benjamin Harrison, IN 46216 TEL: AV 699-2717
Dilg, James W.	LTC	C, Prof Dev Div	USA TRANS SCH, ATTN: ATSP-TD-PDD, Ft Eustis, VA 23604 TEL: AV 927-3367/2474
Eubanks, Bob R.	MAJ	Sr Proj Off	USAIMA, ATTN: ATSU-DTD, Ft Bragg, NC 28307 TEL: AV 236-1208
Evans, John A.	LTC	C, Indiv Tng Div	USA FAS, ATTN: ATSF-TD-IT, Ft Sill, OK 73503 TEL: AV 639-6376
Felton, Richard O.	LTC	Dir, Fin & Acctg Dept	USA FIN SCH, ATTN: ATSG-FS, Ft Benjamin Harrison, IN 46216 TEL: AV 699-4448

NAME	GRADE	POSITION TITLE	MAILING ADDRESS/TELEPHONE
Finch, Curtis R.	Civ	Professor	Virginia Polytechnical Institute, Blacksburg, VA 24061 TEL: AC (804) 951-5812
Fisher, Ed	GS-12	Educ Spec	USA TRANS SCH, ATTN: DAC-ET, Ft Eustis, VA 23604 TEL: AV 927-4400
Foley, Bernard J.	GS-14	C, Tng Anal & Des Div	USA INTEL SCH (D), ATTN: AISI-TD-AD, Ft Devens, MA 01433 TEL: AV 256-3780
Freitag, Melvin	GS-12	Pers Psych	USATSC, SMD, ATTN: ATIC-SE, Ft Eustis, VA 23604 TEL: AV 927-2263
Fuller, Ralph E.	Civ	Contractor Rep	DATA DESIGN LABS (NORFOLK), P.O. BOX 12773, Norfolk, VA 23502 TEL: AC (804) 461-1158
Gover, Donald W.	MAJ	RETO Proj Off	USA CHAP SCH, ATTN: ATSC-TD-OD, Ft Monmouth, NJ 07703 TEL: AV 992-3546
Greer, William W.	GS-13	Educ Spec	USA LOG MGMT CEN, ATTN: DRXMC-LS, Ft Lee, VA 23801 TEL: AV 687-4335
Grotte, Mark R.	CPT	Training Analyst	USA CAC, CATRADA, ATTN: ATZL-TDP-D, Ft Leavenworth, KS 66027 TEL: AV 552-2924/3435
Hale, Jerry R.	Civ		INST OF NUC POWER OPNS, Atlanta, GA TEL: AC (404) 953-3600
Hays, Robert T.	GS-11	Res Psych	USARI, ATTN: PERI-OU, 5001 Eisenhower Ave., Alexandria, VA 22333 TEL: AC (804) 953-3600
Hobson, George K.	MAJ	C, Unit & Org Sup Br	USA QMS, ATTN: ATSM-DTD-U&O, Ft Lee, VA 23801 TEL: AV 687-4168
Hoffman, Marianne C.	GS-11	Educ Spec	US NAVY SP SVCS ACT, ATTN: UIC 66133, Patuxent NAS, MD 20670 TEL: AV 356-3861

NAME	GRADE	POSITION TITLE	MAILING ADDRESS/TELEPHONE
Jones, Alvin T.	LTC	C, Coll Tng	USATSC, ATB, ATTN: ATTG-ATB-CT, Ft Eustis, VA 23604 TEL: AV 927-4651
Kasper, Joseph F.	LTC	C, Prof Dev Div	USAADS, ATTN: ATSA-TDD, Ft Bliss, TX 79916 TEL: AV 978-5003/3617
Kellar, Vera G.	CPT	Proj Off	USAIMA, ATTN: ATSU-TD-TAD, Ft Bragg, NC 28307 TEL: AV 236-0714
Kelly, Gerard H.	LTC	Dir, Instr Mgt Sch	USMC, INSTR MGMT SCH, ATTN: EO3, Quantico, VA 22134 TEL: AV 278-2191
Kendall, Ray J.	CPT	Proj Off	USATSC, ATB, ATTN: ATTG-ATB-TA, Ft Eustis, VA 23604 TEL: AV 927-4658
Kicinski, Maryann J.	GS-11	Educ Spec	USAF, 4444 OPS SQ, ATTN: OTD, HQ TAC AIR CMD, Langley AFB, VA TEL: AV 432-3115/3116
Knippenberg, Harold E.	GS-13	C, C-E Data/Avionics Br, TAD	USA SIG SCH, ATTN: ATZHTD-A-DA, Ft Gordon, GA 30905 TEL: AV 780-2259
Koerin, Philip A.	GS-9	Educ Spec	INSTR DES DIV, TNG DEV INST, Ft Monroe, VA 23651 TEL: AV 680-2667

NAME	GRADE	POSITION TITLE	MAILING ADDRESS/TELEPHONE
Lakeman, Doris O.	GS-13	C, C-E Ops Br, TAD	USA SIG SCH, ATTN: ATZHD-TD-TA-O, Ft Gordon, GA 30905 TEL: AV 780-7311/7653
Londoner, Carroll A.	Civ	Assoc. Prof, Adult Educ & HRD	VIRGINIA COMMONWEALTH UNIV., DIR, ADULT EDUC PROG, SCH OF EDUC, Richmond, VA 23284 TEL: AC (804) 257-1332
Lowery, Louis R.	CW4	Instruction Methods Developer	OFF TNG SYS DIV, TNG DEV INST, Ft Monroe, VA 23651 TEL: AV 680-3211
Mann, Morris M. III	MAJ	RETO Proj Off	USACAC, ATTN: ATZL-TDP-D, Ft Leavenworth, KS 66027 TEL: AV 552-2924
Mitchell, Dennis M.	GS-11	Educ Spec	USA INTEL SCH(H), ATTN: ATSI-TD-ITE, Ft Huachuca, AZ 85613 TEL: AV 879-3985/3925
Montgomery, Richard L.	MAJ	Dep C, OPMS Br	USA INTEL SCH(H), ATTN: ATSI-TD-ITO, Ft Huachuca, AZ 85613 TEL: AV 879-5079
Nakashima, Miles E.	MAJ	C, Off Anal Br	USAIS, ATTN: RAH-I-V-DD-A, Ft Benning, GA 31905 TEL: AV 879-5079
Nerone, Francis A.	COL	Director, TDI	TNG DEV INST, ATTN: ATTG-D, Ft Monroe, VA 23651 TEL: AV 680-2027
Nolan, John H.	CPT	Educ Dev Off	TJAG SCH, ATTN: JAGS-ADN-EDO, Charlottesville, VA 22901 TEL: AC (804) 293-6284
O'Kelley George W.	LTC	Anal Action Off	USA CATRADA, ATTN: ATZL-TDP-P, Ft Leavenworth, KS 66027 TEL: AV 552-3430/3513
Parker, Frank O.	LTC	C, Off Ed Br	USACAC, ATTN: ATZL-TDP, Ft Leavenworth, KS 66027 TEL: AV 552-3435
Pierson, John C.	LTC	C, Anal Div	USA ARMC, ATTN: ATZK-TD-ID, Ft Knox, KY 40121 TEL: AV 464-3546
Pond, George F.	SP6	Asst Chief Res Anal	USA SCH OF MUSIC, ATTN: ATTNG-DTD, Little Creek, VA 23251
Prelewicz, Stephen J.	GS-12	Educ Spec	OFF TNG SYS DIV, TNG DEV INST, Ft Monroe, VA 23651 TEL: AV 680-3211

2-

NAME	GRADE	POSITION TITLE	MAILING ADDRESS/TELEPHONE
Priest, Gary W.	GS-12	Educ Spec	USA ARMC, ATTN: ATZK-TD-ID, Ft Knox, KY 40121 TEL: AV 464-6528/7034
Privett, Judy E.	GS-11	Educ Spec	USA MPS, ATTN: ATZN-MP-DOR, Ft McClellan, AL TEL: AV 831-3155
Pryor, Jack H.	MAJ	Proj Off	USATSC, ATB, ATTN: ATTC-ATB-TA, Ft Eustis, VA 23604 TEL: AV 927-4658
Raymond, Daniel A.	LTC	C, SFTD, TDI	STF & FAC TNG DIV, TNG DEV INST, Ft Monroe, VA 23651 TEL: AV 680-3801
Redmon, Jack R.	GS-12	C, RETO	USA SIG SCH, ATTN: ATZHTD-A-0, Ft Gordon, GA 30905 TEL: AV 780-4895/7416
Roberts, Hugh O.	SP6	Sr Editor, Tng Lit	USA SCH OF MUSIC, ATTN: ATTNG-DTD, Little Creek, VA 23521 TEL: AC (804) 422-7361
Robinson, Joseph	GS-12	Educ Spec	USA AVN SCH, ATTN: ATZQ-TD-TAD-TA, Ft Rucker, AL 39362 TEL: AV 558-7111/6390
Rock, Paul J.	MAJ	C, Task Anal Div	USA OECS, ATTN: ATXW-RMA-TD, Ft Ord, CA 93941 TEL: AV 929-7058
Rompf, Everett C.	GS-12	Sr Educ Spec	USA ENGR SCH, ATTN: ATZA-TD, Ft Belvoir, VA 22060 TEL: AV 354-6851
Rose, Leroy	GS-12	Educ Spec	USATSC, ATB, ATTN: ATTC-ATB-CT, Ft Eustis, VA 23604 TEL: AV 927-4651
Rowley, Cleve M.	MAJ	C, TAD	USA SIG SCH, ATTN: ATZHTD-A, Ft Gordon, GA 30905 TEL: AV 780-6841
Ruble, William C.	GS-13	Supv Educ Spec	USA QMS, ATTN: ATSM-TD, Ft Lee, VA 23801 TEL: AV 687-2927

NAME	GRADE	POSITION TITLE	MAILING ADDRESS/TELEPHONE
Ryan, Arthur J. III	MAJ	C, Indiv Tng Anly Br	USA ORD SCH, ATTN: ATSL-TD-ITA, Aberdeen Prov Grd, MD 21005 TEL: AV 283-4481/4657
Schuyler, Margaret A.	CPT	C, Tng Anal	USA CHEM SCH, ATTN: ATZN-CM-DA, Ft McClellan, AL 36205 TEL: AV 865-4779/4288
Sharp, William R.	MAJ	RETO Proj Off	USA C&GSC, ATTN: ATZL-SWO-P, Ft Leavenworth, KS 66027 TEL: AV 552-3409
Sims, Ronald C.	CPT	RETO Proj Off	USA OECS, ATTN: ATXW-RMA-TD, Ft Ord, CA 93943 TEL: AV 929-7058
Stratton, James R.	CPT	Proj Off	USATSC, ATB, ATTN: ATTG-ATB-TA, Ft Eustis, VA 23604 TEL: AV 927-4658
Stuart, Walter A.	Lt Cdr (USN)	Dep Dir, Sp Prog	DOD EOMI, ATTN: DP, Patrick AFB, FL 32925 TEL: AV 854-4254

NAME	GRADE	POSITION TITLE	MAILING ADDRESS/TELEPHONE
Thomas, Thomas E.	CPT	C, Coll Tng Anal Br	USA OC&S, ATTN: ATSL-TD-CTA, Aberdeen Prov Grd, Md 21005 TEL: AV 283-4416
Van Deren, Richard W.	GS-12	Educ Spec	USA TSCH, ATTN: ATSP-TD-S, Ft Eustis, VA 23604 TEL: AV 927-2668
Vanderlaan, John C.	CPT	C, ITAD	USA SMA, ATTN: ATSS-TD-ITAD, Ft Bliss, TX 79918 TEL: AV 978-8011/8274
Van Dine, Peter	GS-12	Educ Psych	USA FAS, ATTN: ATSF-TD-IT, Ft Sill, OK 73503 TEL: AV 639-6376
Van Zante, William M.	GS-12	C, Stf & Fac Dev Div	USA SSC, ATTN: ATSG-TD-SFD, Ft Benjamin Harrison, IN 46216 TEL: AV 699-3300/3309
Vassos, Aggie	GS-12	Educ Spec	USATSCH, ATTN: ASTD-TD-ATC, Ft Eustis, VA 23604 TEL: AV 927-3006/5720
Wagner, Robert J.	MAJ	Proj Off	USATSC, ATB, ATTN: AFFC-ATB-TA, Ft Eustis, VA 23604 TEL: AV 927-4658
Ward, Joseph S.	GS-15	Asst Dir	USARI, ATTN: PERI-IZ, 5001 Eisenhower Ave, Alexandria, VA 22333 TEL: AV 284-8815
Weir, Antoinette F.	GS-12	Mil Per Mgt Anal	USASSC-NCR, ATTN: ATZI-NCR-MD, Alexandria, VA 22332 TEL: AV 221-0056
Werner, Susan J.	CPT	C, OPMS Br	USA INTEL SCH(D), ATTN: ATSI-ETD-CO, Ft Devens, MA 01433 TEL: AV 256-3459
White, Raymond S.	Civ	Instr Dev Spec	DATA DES LABS (NORFOLK), P.O. BOX 12773, Norfolk, VA 23502 TEL: AC (804) 461-1158
Williams, Roy D. II	GS-11	C, Coll Tng	USA CHEM SCH, ATTN: ATZN-CM-DA, Ft McClellan, AL 36205 TEL: AV 865-3874
Worstine, Darrell A.	GS-13	Supv Mil Per Anal	USASSC-NCR, ATTN: ATZI-NCR-MD, Alexandria, VA 22332 TEL: AV 221-9272/0056
Youngblood, Jesse C.	MAJ	C, A&R Branch	USA SIG SCH, ATTN: ATZHTD-O-A, Ft Gordon, GA 30905 TEL: AV 780-3417

ORAD STAFF:

NAME	GRADE	POSITION TITLE
Pilgrim, Mark T.	LTC	C, OR&AD
Nelson, Jeff	MAJ	C, Life-Coping Skills, BSEP
Tarr, Ronald W.	CPT	Instr Tech
Mitchell, Donald L.	MSG	Instr Tech
Brown, Larry	GS-12	Educ Spec, Learning Strategies, BSEP
Shepherd, Edward	GS-12	Educ Spec, Baseline Skills, BSEP
Welch, Thomas	GS-12	Educ Spec, Eng Sec Lang, BSEP
Silverberg, Bernard	GS-11	Educ Spec/Instr Tech
Manning, Sheri	GS-4	Secy-Typist
Wells, Karen	GS-3	Clk-Typist

MAILING ADDRESS/TELEPHONE

OCC RES & ANALYSIS DIV, TRNG DEV INSTITUTE,
Ft Monroe, VA 23651

TEL: AV 680-3608
      AC (804) 727-3608

INCL 3

TITLE: THE BSA PROCESS

FOR DEVELOPING LARGE-SCALE TRAINING SYSTEMS

THE BSA PROCESS FOR DEVELOPING

LARGE-SCALE TRAINING SYSTEMS

Presentation made on February 25, 1981
to the Chiefs of Analysis Seminar of the
Department of the Army's
Training Development Institute

by

Francis Mechner, Ph.D.
Behavioral Science Applications, Inc.
1501 Broadway
New York, N.Y. 10036

HISTORIC ORIGINS OF BSA'S PROCESS FOR THE DEVELOPMENT OF LARGE-SCALE TRAINING SYSTEMS

During the period from 1960 to 1965, prior to its acquisition by Xerox, Basic Systems Inc., Dr. Mechner's firm, tried to create an efficient, economical, and manageable industrial production process that would reliably produce high quality training systems responsive to clients' requirements. Since Basic Systems was a commercial operation, this production process had to operate within pre-specified time frames and budgets, and had to be sufficiently well methodized to allow it to be carried out by individuals who were neither psychologists nor experts in the subject matter areas involved.

Basic Systems attempted to develop a production process designed to meet these requirements. The process was gradually improved over the four-year period from 1961 to 1965. Other organizations adopted this process and modified it to meet their own requirements. AT&T, for example, developed a set of "standards" for the phases of the process and for the documentation to be produced at the termination of each phase.

In 1973, Dr. Mechner was asked to transfer the knowhow for producing large-scale training systems technology to Brazil, where manpower development is a major problem. The transfer of the technology was to be accomplished through a series of manpower development projects to be carried out by Brazilians under Dr. Mechner's direction. A

Brazilian corporation, EDUTEC, was organized for this purpose, and since that time hundreds of, large-scale performance systems have been developed in such diverse areas as the training of operators of mini-computers, personnel who install and maintain various kinds of equipment, airline ticket agents, sales personnel, auditors, financial analysts, supervisors, physicians to serve as directors of health service centers, gas company servicemen, and professors of administration. In all cases emphasis was placed on producing the desired performance in the job, with training constituting a part of the system that achieves this goal.

In order to accomplish the task of implementing an effective production process for the development of large-scale performance systems in Brazil, it was necessary to carry the methodization of the process beyond the level to which Basic Systems had taken it.

This new, more advanced production process makes it possible to produce higher quality performance systems at lower cost, and with greater efficiency than Basic Systems was ever able to do. The process is also the only one in existence that was developed and, honed continuously, over a period of years, through practical use and application.

Dr. Mechner has continued to improve the process to the present day, with a view to making it more efficient, more economical, easier to manage, and easier to learn. His most recent work on the process has been done under contracts with the U.S. Army Training Development Institute and the Army Research Institute.

BSA'S 20-STEP PROCESS FOR DEVELOPING LARGE-SCALE TRAINING SYSTEMS

The 20-step process for the development of performance systems
described below was developed by Francis Mechner's organization.
The process is based upon and related to training systems develop-
ment processes used previously. It differs from these in that
(a) it places greater emphasis on installing the desired performance
in the real field situation, as opposed to merely producing high
scores on tests, (b) task analysis is done in a more sophisticated
and effective way, (c) the process is broken down and methodized
into smaller discrete production steps, (d) there is more emphasis
on behavioral analysis which is separated out as a discrete step
of the process, (e) several other important tasks that have usually
been buried in other phases or overlooked altogether are separated
out as discrete steps of the process, and (f) equal emphasis is
placed upon the "how to" or operational aspect of carrying out each
step of the process, and the final documentation or end product of
each step.

The steps were selected and defined with several criteria in mind:
(a) Each step has applicability and a place in all or almost all
performance systems development projects regardless of subject
matter area or target population; (b) Each step defines as restricted
and narrowly-defined a task as possible, consistent with the steps
still being large and significant enough to justify their being
carried out in a specific sequence, and consistent with the activities
required by the steps not overlapping in consecutive steps.

2-11

The benefits of the 20-step methodization that was arrived at

are several. First, each step is so simple to execute that a

non-psychologist who may also be unversed in the subject matter

of the training system can be brought into the project at any step

of the 20-step process and become productive in a short time.

Second, the completion of each step provides a meaningful check

point at which the project manager, client, or subject matter ex-

pert can evaluate and control the progress of the work. Third, the

procedures defined by the steps allow efficient use to be made of

the time of outside subject matter experts whose knowledge is to be

transferred, via the training system, to the trainees in the

system's target population. The subject matter experts are able to

make their contributions without actually participating in the writing

or production process.

This 20-step production process has been used for the development of

many training systems during the past eight years, in many widely

different areas, ranging from the training of physicians to become

managers of health service centers at one extreme of the educational

range, to the training of semi-illiterates to become equipment in-

stallers, and clerk-typists to become mini-computer operators at

the other extreme. In the course of the experience gained with these

many projects, the 20-step process has been continuously improved and

refined.

OUTLINE OF THE 20-STEP PROCESS

1. Project analysis -- Preliminary studies and analyses; proposal.

2. Project manual -- To be updated and maintained throughout project.

3. Gross task analysis -- Job analysis or analysis of duties

4. Task analysis -- Development of job performance specifications

5. Performance evaluation procedures -- Development of evaluation items.

6. Validation of performance evaluation items -- Target population test.

7. Behavioral analysis -- Specification of instructional materials

8. Production of examples and cases -- Scripts, episodes, etc.

9. Final review of prerequisites -- Additional pre-requ's are included

10. Final specification of media -- Specified on an item-by-item basis.

11. Performance system plan -- Specification of sequences, types of
    activities to be used, check points, management plan, evaluation
    methods to be used, equipment, logistics, etc.

12. Physical specification of the system -- Amount of each type of
    material such as pages, tapes, booklets, etc.

13. Development of first complete useable version of the system.

14. Test of first version -- on a small group of target population members.

15. Analysis of data from the first test -- Results are used to diagnose
    problems in the first version.

16. Development of second version of the complete system

17. Test of second version -- on another small group of target population.

18. Analysis of data from the second test -- To diagnose remaining problems.

19. Production of the final version of the system

20. Large-scale installation and implementation.

SELECTED TOPICS TO BE DISCUSSED

1. The most important function of the task analyst -- to figure out
    what constitutes competent task performance. The behavioral com-
    ponents that remain invisible during task performance are usually
    the most important ones. How does the man reason? On what basis
    does he make his decisions and judgments? What plausible mistakes
    does he avoid? The task analyst must learn these things by skilled
    investigative techniques.

2. The end-point of the task analysis process -- How does the task
    analyst know when to stop breaking down tasks into smaller units?
    When he has a task that meets each of five criteria. The first of
    these five criteria is that it is a unit of performance that is
    performed repeatedly, each time more or less the same way, and
    often in different circumstances and situations. The second cri-
    terion is that the unit of performance has a specified and measu-
    rable result when done correctly.

3. The output of the task analysis step -- The purpose of the output
    documents of task analysis is to provide the designers. (Phase 2 of
    the ISD process) with the information they need. The essential
    output document is the Task Performance Specification. It describes
    task performance in the _real_ work situation. It must include the
    conditions under which the task is performed, if must describe the
    behavior involved and provide examples of it, it must specify the
    desired results or outcomes of the b ehavior, and the criteria that
    would be applied in determining whether the results or outcomes have
    been achieved.   3-7

4. The distinction between Task Performance Specifications and Performance Evaluation Procedures -- TPS's are the end-product of Task Analysis and specify task performance under real field conditions; Performance Evaluation Procedures are a product of the Design Phase and specify the behavior and performance that will called for and measured in the training and test setting. The training and test conditions simulate the real field conditions as closely as is practical, but they are not identical to the real field conditions.

5. Behavioral Analysis -- the second half of the Design Phase. The input documents for Behavioral Analysis are the TPS's and the PEP's. The end product of Behavioral Analysis is the specification of the training materials to be developed in the Develop Phase. The Behavioral Analysis document tells the developer how to teach each task, what kinds of cases, examples, and problems to use, what responses to call for for each instructional item, item sequences, and instructional media to use.

INCL 4

TITLE: JOB COMPETENCY

ASSESSMENT (JCA)

IDENTIFYING, MEASURING, AND TRAINING "SOFT SKILL" COMPETENCIES

WHICH PREDICT PERFORMANCE IN

PROFESSIONAL, MANAGERIAL, AND HUMAN SERVICE JOBS

JOB COMPETENCY ASSESSMENT (JCA)

A FRONT-END ANALYSIS METHOD TO IDENTIFY

"SOFT SKILLS" THAT PREDICT SUPERIOR PERFORMANCE IN
PROFESSIONAL AND MANAGERIAL JOBS

NOW USED IN ARMY

    (1) ORGANIZATIONAL EFFECTIVENESS STAFF OFFICERS (OESOs)
        OEC&S, FT. ORD

    (2) JUNIOR OFFICERS
        ARI

    (3) ARMY CHAPLAIN SCHOOL
        FT. MONMOUTH

PROBLEM

INCREASING EVIDENCE THAT TRADITIONAL ASSESSMENT METHODS BASED
ON KNOWLEDGE CONTENT--

        O GRADES

        O TEST SCORES

        O INTERVIEWS--

(1) DO **NOT** PREDICT JOB BEHAVIOR OR RESULTS;

(2) ARE **DISCRIMINATORY**: RACE, SEX, CULTURAL BACKGROUND;

(3) ARE **BORING** TO ADULTS.

COMPETENCY

EMPIRICALLY MEASURABLE

* MOTIVE

* TRAIT

* SELF-CONCEPT

* KNOWLEDGE

* SKILL

THAT CAN BE SHOWN TO CAUSE OR PREDICT EFFECTIVE OR SUPERIOR
PERFORMANCE IN A GIVEN JOB

```
┌─────────────────┐      ┌──────────┐      ┌─────────────────┐
│  PERSONAL       │ ───▶ │ BEHAVIOR │ ───▶ │ JOB PERFORMANCE │
│  CHARACTERISTICS│      │          │      │ RESULTS         │
└─────────────────┘      └──────────┘      └─────────────────┘
```

* MOTIVE   * SKILL

* TRAIT

* SELF-CONCEPT

* KNOWLEDGE

COMPARISON OF JOB TASK ANALYSIS
AND JOB COMPETENCE ASSESSMENT

JOB TASK/FUNCTIONS	JOB COMPETENCY
ELEMENTS OF <u>JOB</u>	CHARACTERISTICS OF <u>PERSON</u> WHO <u>DOES</u> JOB <u>WELL</u>
E.G., ADMINISTRATIVE PAPERWORK	o LOGICAL THOUGHT: ARRAYS THINGS IN HIERARCHICAL (PRIORITY) OR TEMPORAL ("PERT") SEQUENCES
	o DELEGATION
	o MONITORING

TRAINING IMPLICATION

DETAILED INSTRUCTION AND PRACTICE IN FILLING OUT/ PROCESSING JOB-SPECIFIC	UNDERSTAND/PRACTICE
	o LOGICAL THOUGHT
FORM 1.	o DELEGATION
2.	o MONITORING
3. ETC.	IN MANY VARIED CASES (INCLUDING SPECIFIC JOB):
	o HOSPITAL PATHOLOGY LAB
	o TACTICAL NUCLEAR-WEAPONS DEPOT
	o WASHINGTON STAFF AGENCY
I.E., TEACH <u>SPECIFIC</u> JOB SKILL--BEST FOR "MICRO" TECHNICAL TASKS--TROUBLE-SHOOT RADIO	I.E., TEACH <u>UNDERLYING GENERIC CAUSAL</u> SKILL--BEST FOR "HIGHER-LEVEL" PROFESSIONAL AND AND MANAGERIAL JOBS--E.G., LAWYER

LOWER-LEVEL ENLISTED GENERIC COMPETENCIES

JOB TASK/FUNCTIONS	JOB COMPETENCY
o Clean chapel/motor pool	o Attention to detail
o Type memos	o Proactivity in advancing career
	-- Persists (innovatively) when blocked
	-- Makes productive use of "doing nothing" time
	o Conflict-resolution skills with boss

TRAINING IMPLICATION	
	o Attention to detail
	(1) Comic picture: How many things can you find wrong?
	(2) Memo with typos
	(3) Dirty chapel/motor pool
	(4) Conflicting schedule
	o Productivity
	(1) Career maze game with blocks
	(2) "Hour Alone": How many ways can you use it?
	o Conflict resolution Role-play real incidents

STABLE (CAUSAL) COMPETENCIES OF <u>PEOPLE</u>
VS.
TEMPORARY SKILL DEMANDS OF <u>JOBS</u>

	ENVIRONMENT	PERSON
TEMPORARY	**SITUATIONAL (JOB) DEMAND** ● GETTING MUGGED ● JOB INSTRUCTION: "THIS IS THE RIGHT WAY TO DO THIS TASK"	**IMPULSE** ● "I'M ANGRY" ● "I WANT TO DO WELL ON THIS TASK"
STABLE	**ORGANIZATIONAL/STRUCTURE INCENTIVES** ● SUSTAINED COMBAT, CONFRONTIVE POLITICS ● CHALLENGE, REWARDS FOR EXCELLENT PERFORMANCE	**MOTIVE DISPOSITIONS** ● AGRESSION (FIGHTER PILOTS): "I'M <u>ALWAYS</u> LOOKING FOR A FIGHT" ● ACHIEVEMENT MOTIVATION: "I'M A CHRONIC PERFECTIONIST"

JOB TASK ANALYSIS

JOB COMPETENCE ASSESSMENT

The Job Competency Assessment Process

Objective: increase assessment and training efficiency by empirically identifying <u>characteristics</u> of <u>people</u> who <u>do jobs well</u>

Process: Define

① **Performance Effectiveness Criteria**

- "hard data": sales, profits, productivity measures, unit performance records (e.g., ARTEP scores, retention rates)
- supervisor nominations
- peer ratings
- subordinate ratings (as by organizational climate surveys)

Identify

2 **Criterion Sample**

- superior performers
- average performers

④ **Job Task/Function Analysis**

- elements of the job people are required to perform

④ **Performance Characteristics Analysis**

- hypotheses about characteristics of <u>people</u> who do the job well

5 **Behavioral Event Interviews**

6 **Direct Observation**

- coding of observed behaviors

7 **Thematic Analysis: Development of Competency Model**

- development of "Behavioral Codebook" describing competencies

8 **Validation of Competency Model**

- interviews
- tests } second criterion sample

Application of Competency Model

- selection
- training for job
- professional development while <u>in</u> job
- performance appraisal
- evaluation of training, professional development, etc., programs

COMPARISON OF JOB ANALYSIS METHODS

1. CONTENT KNOWLEDGE/"THEORY"

2. EXPERT PANELS
   * NO DATA - DOESN'T PREDICT
   * FOLKLORE, "MOTHERHOOD" ITEMS
   * NOT SPECIFIC: E.G., "CONCERN FOR PEOPLE"

3. JOB TASK ANALYSIS
   * JOB, NOT BEST PEOPLE: E.G., "CONTRACT WITH CLIENTS"
   * TOO DETAILED
   * NOT SELECTIVE: 80/20 RULE

4. COMPETENCY ASSESSMENT
   * PEOPLE WHO DO JOB WELL: PREDICTIVE
   * SPECIFIC MEASUREMENT, TRAINING OF SOFT SKILLS
   * SELECTIVE: KEY CAUSALLY-RELATED "TRANSFER" SKILLS WHICH PREDICT ABILITY TO LEARN OTHER SKILLS

MEASURING COMPETENCIES

* TESTS

* RATINGS

* "ASSESSMENT CENTER"
   EMPIRICAL CODING OF BEHAVIOR

}

OPERANT
VS.
RESPONDENT

TRAINING COMPETENCIES

1. RECOGNITION: IMPORTANCE OF SKILL TO JOB FUNCTIONS

2. UNDERSTANDING: LEARN SCORING SYSTEM

3. SELF-ASSESSMENT: SELF VS. SUPERSTAR

4. SKILL PRACTICE: TO CRITERIA

5. JOB APPLICATION: GOAL SETTING - ACTION PLANNING

SUMMARY POINTS

COMPETENCY ASSESSMENT

* COMPATIBLE WITH ISD

* ESPECIALLY USEFUL WITH "SOFT SKILLS" IN HIGHER LEVEL
  JOBS: LEADERS, MANAGERS, HUMAN SERVICE PROFESSIONALS

* TRAINING IN CAUSALLY-RELATED "TRANSFER" COMPETENCIES
  MORE EFFECTIVE
  - WHAT PEOPLE WILL DO VS.
  - SKILLS TRAINING ALONE: WHAT PEOPLE CAN DO

IDENTIFYING, MEASURING, AND TRAINING "SOFT SKILL" COMPETENCIES

WHICH PREDICT PERFORMANCE IN

PROFESSIONAL, MANAGERIAL, AND HUMAN SERVICE JOBS

Lyle M. Spencer, Ph.D

McBer and Company

Lyle M. Spencer, Jr., Ph.D. is Vice President of McBer and Company,
a management consulting and training firm. Copies of this article
can be requested from McBer and Company, 137 Newbury Street, Boston,
MA 02116, (617) 261-5570.

Introduction

This paper will describe a new personnel procedure, Job Competence Assessment (JCA), which has been successfully used to identify "soft skill" competencies which predict performance in professional, managerial, and human service jobs.

I can best introduce the Job Competence Assessment method by providing an example from one of the seminal projects in which it was used.

In the early 1970s, McBer and Company was approached by the United States State Department for assistance in selecting and assessing the performance of Junior Foreign Service Officers (FSOs). Traditionally, the State Department had selected Foreign Service Officers through the use of a Foreign Service Officer exam. This exam was based on the hypothesis of senior statesmen officials that the skills required for effective performance as a modern diplomat were essentially "liberal arts" knowledge and culture: American history, Western civilization, verbal fluency, and such specialities as economics and government. Typical items on this exam presented an aspiring FSO with a line of Greek poetry, followed by a multiple choice question as to the line's author: Aeschylus, Sophocles, Euripides, Aristophanes.

This exam had two principal drawbacks. First, it was quite discriminatory: Minorities and others from less privileged, "cultured" backgrounds were much less likely to pass it. Second, and more importantly, performance on this test not only did not predict performance as a Foreign Service Officer, but scores were actually negatively correlated with ratings of on-the-job performance (McClelland & Dailey, 1973).

McBer was asked to develop a methodology to answer the obvious question: If verbal fluency and cultural content knowledge do not predict FSO performance, what skills and competencies do? The Job Competence Assessment methodology used to answer this question consisted of the following steps.

First, the State Department was asked to identify, through a variety of techniques (including supervisory, peer, and client nominations and ratings) one criterion sample of its best Junior FSOs and another of average FSOs.

Second, superior and average performers were interviewed using an in-depth "Behavioral Event Interview" (BEI) technique. This method, developed by Harvard University psychology Professor David C. McClelland and colleagues at McBer and Company (McClelland, 1976) is derived from Flanagan's (1954) classic Critical Incident Method.

It asks interviewees to identify the most critical situations they have encountered on their jobs and describe these situations in considerable narrative detail: What led up to the situation? Who was involved? What did the interviewee think about, feel, and want to accomplish in dealing with the situation? What did he or she actually do? What was the outcome of the incident? McClelland's method goes beyond Flanagan's, however, in that it includes thematic apperception test probes which elicit data about the interviewee's personality and cognitive style (e.g., achievement motivation or convergent thinking ability).

Third, interview protocols were content analyzed to identify characteristics and behaviors which distinguished superior from average job incumbents.

Fourth, hypotheses about competencies which discriminated superior from average performers were tested in two types of cross-validation designs. Additional interviews were conducted with a second set of superior and average job incumbents. These interviews were empirically coded for elements which distinguished the two groups in the first criterion sample. (Empirical coding of interviews can be done with high interrelater reliability, $rs = .80 - .90$, providing quantitative data that can be used in standard statistical tests of significance.) Objective tests were then developed to measure the presence of competencies causally related to the behaviors reported in the behavioral event interviews. Discriminate function analysis techniques were used to see how well interview and test variables derived from the competency model, based on the first criterion sample, predicted classification of superior versus average performance in the second validation sample.

The findings of the State Department study were very interesting. The types of competencies which discriminated superior from average Foreign Service Officers were such soft skills as:

- nonverbal empathy: the ability to "hear" what a person from a foreign culture was really saying or meaning in a negotiation;

- a skill we wound up calling "speed in learning political networks," the ability to very quickly figure out in a foreign capital that it was the Prime Minister's executive assistant's mistress' nephew that really called the shots in a particular area of foreign policy--and how to get to this nephew; and

- positive expectations, or what Rosenthal (1976) calls "the Pygmalion effect": a strong belief in the underlying dignity and worth of others different from oneself, and the ability to maintain this positive outlook under stress.

These and other nontraditional "soft skill" competencies did demonstrate criterion validity in predicting Foreign Service Officer performance at statistical levels of significance and proved not to be discriminatory on racial, sexual, or SES background bases.

This Job Competence Assessment process has now been used to identify the "soft skills" which predict performance in more than 50 professions, from manufacturing managers and computer design engineers in high technology industries, to paraprofessional human service workers in New York City, to United States naval officers.

The Job Competence Assessment Process

The Job Competence Assessment process has since been elaborated to include some of the job task/function analysis techniques per-scribed in the DOD's ISD model, and the job element analysis methods developed by civil service researchers (Primoff, 1977). The present process remains, however, based on the assumption that the best way to identify the knowledge, skills, or other abilities needed to per-form competently in a job is (1) to identify the most effective performers in that job; (2) study what these people actually do that distinguishes them from individuals whose performance is less satis-factory; and (3) identify the specific skills, abilities, or characteristics which are responsible for this difference.

The current Job Competence Assessment process, now being used to identify competencies of effective Army Organizational Effective-ness Staff Officers, consists of eight steps (see Figure 1).

(1) Define Performance Effectiveness Criteria

To identify superior job incumbents, it is first necessary to define measures of performance effectiveness in a given job. Ideal criteria are "hard" outcome measures, such as sales or profits data in industry, or unit performance outcomes, such as ARTEP scores or retention rates, for military officers. In the absence of such cri-teria, supervisor nominations and peer ratings can be used. (Recent reviews by Lewin and Zwany, 1976, and Kane and Lawler, 1979, indi-cate that these ratings have high criterion validity.) Supervisory and peer ratings can in some cases be supplemented with client or subordinate ratings (e.g., those available from organizational cli-mate surveys).

(2) Identify Criterion Sample

Job incumbents who are consistently rated superior on a number of different performance criteria provide a standard for comparison analyses with a sample of average performers in the remaining steps of the process.

FIGURE 1

Schematic of the Job Competency Assessment Process

Define

① Performance Effectiveness Criteria

- "hard data": sales, profits, productivity measures, unit performance records (e.g., ARTEP scores, retention rates)
- supervisor nominations
- peer ratings
- subordinate ratings (as by organizational climate surveys)

Identify

② Criterion Sample

- superior performers
- average performers

③ Job Task/Function Analysis

- elements of the job people are required to perform

④ Performance Characteristics Analysis

- hypotheses about characteristics of people who do the job well

⑤ Behavioral Event Interviews

⑥ Direct Observation

- coding of observed behaviors

⑦ Thematic Analysis: Development of Competency Model

- development of "Behavioral Codebook" describing competencies

⑧ Validation of Competency Model

- interviews
- tests } second criterion sample

Application of Competency Model

- selection
- training for job
- professional development while in job
- performance appraisal
- evaluation of training, professional development, etc., programs

4-16

-4-

(3) Job Task/Function Analysis

A job task or function analysis by traditional time-log, panel, or direct observation methods can be used to supplement the data collected in the Job Competence Assessment process, although for reasons which will be discussed below, this method is less useful in identifying critical "soft skills" competencies, because job task analyses identify the characteristics of the job as opposed to those of the people who do the job well.

(4) Performance Characteristics Analysis

A panel of expert incumbents or observers of the job to be analyzed is convened to develop a list of hypothesized character- istics of people who do the job well (cf. the "Job Element Analysis" method developed by Primoff, 1977). Expert panels then rate each characteristic on four scales:

(1) the extent to which it distinguishes superior from average performers;

(2) how many barely acceptable performers possess it;

(3) how critical it is for selection or training; and

(4) how many job openings one could realistically expect to fill if one demanded the characteristic or skill as an entry criteria.

Statistical analysis of these ratings provides a numerical ranking of those characteristics which contribute most highly to superior performance and elimination of those which are unrealistic or appear to be possessed by few job incumbents.[1] This analysis provides a set of hypotheses about critical performer competencies which must be verified by behavioral event interview or direct ob- servation data.

(5) Behavioral Event Interview

As described in the Foreign Service Officer example, superior and average performers are interviewed in-depth about the most critical situations they have encountered and hence, the most im- portant skills and competencies required of them in their actual jobs. Behavioral event interview protocols provide a wealth of data

___

[1] An element will be rated highly (1) if it distinguishes the superior performer; (2) if very few barely acceptable performers have it; (3) if trouble is likely if it is not considered in selection or training; and (4) if it is realistic to fill at least some jobs by demanding it. Conversely, an element will receive a low rating (1) if it does not distinguish the superior performer; (2) if al- most all barely acceptable performers possess it; (3) if one can safely ignore it in selection and training; and (4) if all jobs can be filled by demanding it. (See equations in Primoff, 1977.)

for the identification of "soft skill" competencies and a very specific description of job behaviors. (A significant "by-product" of these interviews is the generation of numerous situation and problem narratives which can be used to develop highly relevant training materials--e.g., case studies and simulations.)

(6) Direct Observation

Where possible, direct observation can be used to verify job task analysis, performance characteristics, hypotheses, and behavioral event interview data. As will be discussed below, empirical "assessment center" behavioral coding schemes (Bales, 1969; Bales, Cohen, & Williamson, 1979) provide perhaps the most valid method of measuring soft skill competencies.

(7) Thematic Analysis and Development of a "Competency Model"

Data from the job task performance characteristic analysis and behavioral event interviews are subjected to a rigorous content analysis procedure to identify the behavioral patterns and personality characteristics which distinguish superior from average job incumbents. This is the most difficult and creative step in the JCA process. Two or more trained analysts examine the data and attempt to define competency elements which are differentially present or absent in the data on superior as compared with average performers. These elements are refined until they can be recognized with acceptable inter-rater reliability. A detailed and specific "behavioral code book" is prepared to facilitate empirical coding of interview data. These data are then used to test the criterion validity of the model. The behavioral code book, which describes the soft skill competencies that predict performance in the job, provides the "competency model" for the job.

(8) Validation of the Competency Model

As described in the Foreign Service Officer example, the competency model derived in Step 7 can be cross-validated by (1) collecting behavioral event interview data on a second criterion sample and seeing if a discriminant functions analysis based on the first study predicts successful as opposed to average performers in the second sample; and/or (2) constructing objective tests to measure the competencies derived from the competency model and using test scores from a second criterion sample to test the model's criterion and predictive validity.

Application of the Competency Model

Once validated, the competency model can be used in a variety of ways: as the basis for the design of selection tests, assessment centers, performance appraisal systems and training and professional development programs, and as a source of criteria for the evaluation of training programs.

Comparison of Job Competence Assessment With Other Job Analysis Methods

It is useful to examine how the Job Competence Assessment method differs from and can address some of the limitations in traditional job analysis techniques. Three traditional approaches to defining selection and training criteria can be distinguished:

(1) Content Knowledge or Theory-Based Systems which specify, on the basis of theory, the knowledge skills which should be important for a person to have in order to do a job.

(2) Expert Panel: the characteristics which experts, tasked to determine by consensus, think are important for a person to have in order to do the job (represented in the Job Competence Assessment process by the performance characteristics analysis step).

(3) Job Task/Function Analysis: identification of the task functions that make up the job which are used to infer the knowledge and skills needed by the people who occupy the job.

Theory and panel methods have three distinct limitations. First, they lack supporting empirical data to show that the knowledge or skill characteristics they posit are in fact related to on-the-job performance. An example was the humanistic psychology courses which swept the military a few years back: Civilian academic management theories and strongly-held beliefs on the part of a few persons led to the implementation of "leadership" courses, which taught and prescribed "humanistic" communications techniques in the absence of any data to show that these techniques had in fact anything to do with effective leadership in military organizations.

Second, theory and panel methods tend to identify so-called "folklore" or "motherhood" items (such as "integrity," "perserverance" or "moral courage") which sound good and are seen as qualities that all job incumbents should have, but which may or may not be related to performance on the job. For example, in the State Department study, "writing skills" was agreed upon as necessary for superior performance of Foreign Service Officers. The

Job Competence Assessment process found that despite the fact that "everyone knew" that writing skills were important, this ability did not in fact differentiate superior from average performers. What was important was the ability to write with sensitivity to political issues.

The third shortcoming of theory and panels is that the data they generate are not sufficiently behaviorally specific to provide practical selection or training criteria. For example, it is difficult to define "concern for people" in observable terms. How does one manifest concern? What does this mean? It turns out that what has usually been identified as "concern for people," affiliation motivation, or the desire to establish close friendly relations with others has consistently been found to be negatively related to effective performance in managerial roles (McClelland & Burnham, 1976). Effective concern for people, at least for industrial and military leaders, is not a function of affiliation needs, but rather the combination of a skill called accurate empathy (the ability to understand what others are saying) and power or influence skills (the ability to empower others to make them feel more capable of solving their own problems).

Job tasks/function analysis methods also have limited utility in identifying soft skills. The unit of analysis is the job, not the person who performs the job well. For example, a job task analysis statement for a mechanical engineer might be "designs gears." This is accurate enough but says nothing about what enables an engineer to design a gear well. Behavioral event interviews with superior engineers indicate that they have an underlying competency which might be labeled "three dimensional eidetic rotational imagery." For example, in behavioral event interviews, better engineers described an ability to mentally "image" and mutate physical objects in three dimensions, imaging different configurations until they arrive at an optimum design. Some even reported bringing other senses into play as well (e.g., "I sort of became the gear and tried to feel where I would hurt or break if under stress--sounds crazy, but it led me to 'seeing' the need to thicken a flange..."). This cognitive competency did not appear in average engineers' interview protocols. Similarly, in studies of Army Organizational Effectiveness Staff Officers (internal organizational development consultants), an important job function appeared to be "contracting with clients" (i.e., negotiating with the service recipient to agree on just what services the consultant would provide). This functional statement, however, does not specify what consultant skills lead to effective contracting. All consultants contract, but only some do it well. A key soft skill competency in this case proved to be "accurate empathy": more effective consultants were better able to "hear" their clients' underlying concerns.

In each case, job task analysis methods can identify what people do, but not the nuances of professional skill that enable some persons to perform a task more effectively than others. Lists of tasks,

such as "writes memos" or "communicates orally to subordinates," are of little use without supplementary information about the competencies a superior job incumbent uses to make these communications effective (e.g., accurate empathy, political sensitivity, or such influence methods as assertive persuasion).

Second, job task analyses tend to be too detailed to be practical (e.g., lists of the 4,300 discrete behaviors required in driving a car or the 3,001 functions performed by a teacher). Such analyses may be useful for describing specific technical tasks (for example, the steps in trouble-shooting a radio), but provide too much information in the wrong form to be helpful in teaching soft skills.

Finally, job task analyses are not selective. The well-known Praeto rule indicates that only a critical 20 percent of the functions a person performs on the job account for 80 percent of performance. The remaining 80 percent of all job functions are routine maintenance activities which do not distinguish successful from average performers. Job tasks/function analysis lists, particularly in the absence of a criterion sample, can not distinguish the important functions from all the functions that a job incumbent performs.

The Job Competence Assessment method overcomes some of the limitations of theory, panel, and job task analysis techniques and can supplement them in the identification of critical soft skills. First and most importantly, the JCA method goes beyond espoused theories and job descriptions to identify the personal characteristics and skills important to effective performance of specific job functions.

Second, the behavioral event interview makes it possible to document these soft skill competencies with sufficient behavioral specifics that they can be used to assess and train others.

Third, the JCA method is selective: The critical incident interview approach necessarily focuses on the "critical 20 percent" of knowledges, skills, abilities, and other characteristics most important to performance as opposed to the large number of ancillary behaviors associated with routine functions.

Application of Job Competence Assessment Methods to Measuring and Training Soft Skills

It may be useful to briefly describe some of the methods developed from the Job Competence Assessment procedure for measuring and training to soft skills.

Measuring Soft Skills

There are three commonly used "soft skill" assessment methods:

(1) Paper-and-pencil tests of knowledge content, cognitive
     ability (e.g., critical thinking or decision making),
     and personality variables (e.g., attention to detail
     and concern for influence). In general, operant tests
     (e.g., essay exams or projective instruments), which
     require test-takers to generate behavior, are more
     useful than respondent measures (e.g., multiple choice
     exams) which ask test-takers to choose among items.
     Reviews suggest the criterion validity of multiple-choice
     tests rarely exceeds $r = .33$ or 10 percent of the ob-
     servable variance (Ghiselli, 1966; Mischel, 1968).

(2) Superior and/or peer ratings of job incumbents on the
     basis of general performance or aptitude for a job.
     Recent reviews indicate the criterion validity of such
     ratings is somewhat better than that of paper-and-
     pencil tests: $r = .40 - .45$ or 16 - 20 percent of the
     variance (Lewin & Zwany, 1976; Kane & Lawler, 1979).

(3) Observer ratings of performance on simulated job-specific
     tasks (e.g., ratings of military officer performance in
     such assessment center exercises as giving a presentation
     or managing a leaderless group). Reviews of the predictive
     validity of assessor scores is better still: $r = .50 - .60$
     or 25 - 30 percent of the variance (MacKinnon, 1975).

Our research indicates that operant tests are much more ef-
fective in measuring soft skills than are respondent knowledge con-
tent tests. For example, in assessing influence skills, it is much
better to measure individuals' ability to make an effective argument
(an operant performance) as opposed to their ability to recognize
an effective argument on a multiple-choice test. In general,
simulated job performance tests are more predictive than operant
paper-and-pencil tests.

Very frequently, the operant test items or situations and test
scoring criteria for specific soft skill competencies can be derived
from behavioral event interview data and the behavioral code book
which describes the competency model for a job. A better score on
such tests is what superior performers actually do as opposed to
what average performers do. Two examples from the Navy officer
competency model may be helpful here.

Figure 2 provides examples from an operant coding system for
critical thinking, the cognitive ability to make inferences or
draw critical distinctions from large amounts of confusing, con-
flicting data, and cite specific data to support one's inference.

FIGURE 2

Example from an Operant Coding System
for "Critical Thinking"
(from Winter & McClelland, 1978)

Procedure: a subject is asked to compare and contrast two
conflicting analyses of or statements about a
stimulus or set of data

Coding System for scoring subjects' response:

-1:   no critical distinction nor inference; affective
bias (e.g., "I liked analysis 1 and disliked
analysis 2.")

0:   no critical distinction nor inference; no affective
bias

+1:   critical distinction or inference, but no mention
of supportive data (e.g., "Analysis 1 identifies
the problem as X, where Analysis 2 identifies it
as Y.")

+2:   critical distinction with mention of supportive
data

+3:   critical distinction or inference with mention of
data pro and con one's inference; probabilistic or
weighted reconciliation of conflicting data

Critical thinking is important because it appears to be a generic competency of superior performers in almost every field: Better Navy officers, better counselors, better organic chemists, better medieval literature students, better lawyers, etc. all are higher in critical thinking ability.

The procedure for giving this test is to ask a subject to compare and contrast two conflicting statements or analyses of a situation or set of data. The content of the stimulus or data is not important. It can be drawn from any knowledge area or profession; for example, two conflicting tactical plans for an infantry officer, or two conflicting analyses of the same organic compound for an organic chemist.

The coding system for scoring subjects' operant responses is summarized in Figure 2. At low levels of critical thinking, subjects are unable to make a critical distinction or inference between the two sets of data and may show affective biases (e.g., "I liked Analysis 1 and disliked Analysis 2"). At higher levels of critical thinking, persons are better able to make critical distinctions or inferences, cite data to support their positions, and reconcile conflicting data pro and con their inferences (i.e., reason probabilistically or reconcile conflicting data by weighting opposing statements).

Subjects' behavioral event interview protocols can be coded for this dimension, as can their memoranda, arguments in leaderless case discussions, essay responses to problem analysis tests, and the like.

A second example of operant coding of a critical soft skill competency, "accurate empathy" or understanding, is provided in Figure 3. This is a generic competency evidenced by superior performers in a wide range of professional, managerial, and human service workers jobs.

For example, a somewhat surprising finding of our Job Competence Assessment studies of Navy officers was that they spent a sizable amount of their time counseling subordinates, and that superior officers were significantly more proficient in counseling skills. The coding and scaling system provided in Figure 3 is taken from a competency-based training module designed to teach naval officers advising and counseling skills.

Accurate empathy is an assessment of the extent to which the person can accurately hear the content, meaning, and feeling of what another person is saying. This variable is measured by coding the response a subject makes to a live, audio-tape, or written stimulus statement made by a "counselee." The coding system for accurate empathy recognizes three elements: the respondent's accuracy as to (1) the content of what the counselee is talking about; (2) the counselee's meaning (i.e., why he or she is concerned

FIGURE 3

Example:
An Operant Coding System for "Accurate Empathy"
(from Carkhuff, 1969)

Procedure: a subject is asked to make an appropriate
counseling response to a taped or live
statement made by a "counselee"

Understanding (accurate empathy): measures the extent to which
the counselor accurately hears the content, meaning, and feeling
(type of feeling and intensity of feeling) of what the counselee
is saying.

- Content: what the person is talking about--his wife,
  her job, an alcohol problem, etc.

- Meaning: why the person is talking about it--"You are
  talking about, because..." (e.g., wife, because she's
  leaving him; job, because she's not doing it as well as
  she could, etc.)

- Feeling: how the person feels--the feeling word the
  person uses.

  --type of feeling: sad, angry, frustrated

  --intensity of feeling: for example, for anger,
    where on a scale from "mildly irked" to "blind rage"

For example, to a person who has received a "Dear John" letter,
the counselor says:

UNDERSTANDING

①	②	③	④
Content, meaning, feeling absent or wrong	Content accurate; meaning, feeling absent or wrong	Content and meaning accurate; feeling in-accurate or wrong	Content, meaning, feeling all accurate
"Nice weather, isn't it?" "So what?-- get back to work."	"Sounds like you got marriage problems."	"Your perfor-mance was off today because you got some bad news."	"You were too up-set to work because you got that letter from your wife."

4-25
-13-

about the content); and (3) the counselee's _feeling_, both the type of affect and the intensity of affect expressed about the content and meaning.

For example, at a low level of accurate empathy, a Navy officer may respond to a subordinate who has received a "Dear John" letter with a curt, "Tough luck. Get back to work.", or a completely content-irrelevant response such as, "Nice weather, isn't it?" At higher levels of accurate empathy, the officer understands and reflects the subordinate's feelings in the context of their content and meaning (e.g., "You're really shook up because of that letter you got from your wife."). A response of this type makes the subordinate feel understood and facilitates his or her coping with stressful feelings.

A large body of literature indicates that accurate empathy is a critical competency for all types of professionals (e.g., doctors or lawyers, persons in helping positions) (Carkhuff & Berenson, 1976). More recently, it has also been found to be a critical skill for leaders and managers, underlying what is called "concern for people." (It should be emphasized that accurate empathy is not sympathy, _feeling_ what the other feels, but rather understanding, _knowing_ what the other feels, which enables a manager to make the appropriate response to help a subordinate solve a personal problem.)

The important thing about such operant coding systems for any soft skill competency is that they are both highly interrater reliable (i.e., can be accurately recognized) and demonstrate predictive validity (i.e., can be shown to be causally related to superior job performance). Perhaps even more importantly, once soft skills can be defined in this level of behavioral detail, they can be readily taught to others; which leads me to my final subject, training in soft skills.

Training in Soft Skills

Until recently, many educators have been skeptical about the extent to which it is possible to teach or train people in such soft skill competencies (e.g., achievement motivation, critical thinking, accurate empathy, or skillful use of influence). Over the past 25 years, McClelland (McClelland & Winter, 1971) has conclusively shown that achievement motivation, an important cognitive affective competency which predicts success in jobs requiring entrepreneurial initiative, can be taught. The method McClelland prescribes for training to such a competency is relatively simple. It involves (1) teaching people the behavioral coding system for the competency in great detail; (2) practice in assessing their own and other's behaviors in achievement motivation terms; (3) setting specific goals and defining action steps for using the

competency, first in a supportive training environment, and then in creasingly in real life. Persons trained in achievement motivation show significant increases in personal income, career advancement, business sales and profits, and create more capital and jobs. (Miron & McClelland, 1979).

In recent work in developing competency-based leadership and management courses for the United States Navy, McBer has developed a fairly standard five-step competency training procedure (Spencer, 1978) which incorporates and expands upon McClelland's principles. I will briefly describe how each of these steps is used to teach the two competencies discussed above under measurement of soft skills, critical thinking, and accurate empathy.

Recognition

Trainees are presented with a difficult case or a simulation problem-designed to produce a "shock of recognition" in which they realize that they actually encounter problems calling for the use of the competency in question in their real jobs, and that they often have trouble dealing with these problems. For example, trainees may be given a complex analytical task which requires critical thinking or be asked to counsel a subordinate in distress in a role-play. The cases and simulations used are drawn from actual critical incidents collected during the behavioral event interview phase of the Job Competence Assessment process. The recognition step is designed to introduce the competency in an experiential way and create specific motivation for learning.

Explanation

Trainees receive practical conceptual input on the competency via readings, lectures, or demonstrations. For example, in the module on critical thinking, trainees are given a lecture on the importance of critical thinking in their field, are taught the critical thinking coding system, and score actual case problem analyses for critical thinking. In a counseling module, trainees are similarly taught the accurate empathy scoring system and then code video-taped demonstrations illustrating lower and higher stages of empathy behavior. Recent research indicates that trainees can quickly acquire a very high degree of reliability ($r = .95+$) when exposed to behaviorally specific examples of discrete points on a scale (Lawton & Borman, 1978).

Self-Assessment

Trainees receive operant test feedback on their performance on the competency factors which predict superior performance. This feedback in effect tells them, "This is how the superstars in your billet perform on these dimensions, and this is how you perform," which provides trainees with very specific motivation, direction,

and goals for change. Knowledge of the behavioral coding scheme imparted in Step 2 enables trainees to grasp quickly and see exactly what they are doing effectively or ineffectively in terms of a given soft skill competency.

Skill Practice

Trainees practice using the competency skills they have been taught. For example, the best way of practicing critical thinking is repeated exposure to analytic case discussions of the type pioneered by Harvard's Law and Business Schools. Students who are repeatedly asked to analyze complex case problems to respond to the insistent questions "What's the problem? Who has it? What are your data?" rapidly gain in the ability to draw critical distinctions and inferences from complex information. (Incidentally, our studies indicate that the case method effectively teaches two competencies; critical thinking and assertive persuasion skills, the ability to "think on one's feet" and articulately defend one's analysis of a situation, or proposed solution to a problem.)

In practicing accurate empathy, students conduct repeated real or simulated counseling sessions which are recorded on video or audio tape, then play back and score their responses on the accurate empathy scale, continuing this process until they reach a mean level of 3 on a 4-point scale, the level which predicts successful performance (Carkhuff & Berenson, 1976).

Job Application

In the final step, trainees identify situations in which they will use the competency in their jobs and set goals, anticipate obstacles, and develop an action plan for doing so. This step reinforces the relevance of the training, translates it back into a real job performance context, and increases the likelihood that any soft skill competency learned will be in fact used back on the job.

In summary, the Job Competence Assessment process identifying, measuring, and training soft skills provides a number of benefits. It permits description, in very specific behavioral terms, not only of the elements of a job but the characteristics and skills of the persons who do the job well. These behavioral indices can be used in a variety of personnel functions: development of non-discriminatory selection tests and interview processes and competency-based performance appraisal, "efficiency" or evaluation reports, and the design and evaluation of training programs. Competency-based selection, assessment, and training procedures provide empirical, reliable, predictively valid and face valid methods of defining the soft skills associated with competent job performance: what superior incumbents actually do in their real jobs.

References

Bales, R. F. _Personality and interpersonal behavior_. New York: Holt, Rinehart and Winston, Inc., 1970.

Bales, R. F., Cohen, S. P., & Williamson, S. A. _Systematic multiple level observation of groups_. New York: Free Press, 1979.

Carkhuff, R. R. _Helping and human relations_ (vols. I and II). New York: Holt, Rinehart and Winston, 1969.

Carkhuff, R. R., & Berenson, B. G. _Teaching as treatment_. Amherst, MA: Human Resource Development Press, 1976.

Flanagan, J. C. The critical incident technique. _Psychological Bulletin_, 1954, _51_(4), 327-358.

Ghiselli, E. E. _The validity of occupational aptitude tests_. New York: John Wiley & Sons, 1966.

Kane, J., & Lawler, E. Methods of peer assessment. _Psychological Bulletin_, 1979.

Lawton, G. W., & Borman, W. C. Constructing stimuli with known true scores for determining validity of rating scales. _Proceedings for the sixth symposium: Psychology in the Department of Defense_. Colorado Springs: U.S. Air Force Academy Department of Behavioral Sciences and Leadership, April, 1978,

Lewin, A. Y., & Zwany, A. _Peer nominations: A model, literature critique, and a paradigm for research_. Springfield, VA: National Technical Information Service, 1976.

MacKinnon, D. W. _An overview of assessment center methods_. Technical Report No. 1. Greensboro, NC: Center for Creative Leadership, 1975.

McClelland, D. C. _A competency model for Human Resource Management Specialists to be used in the delivery of the Human Resource Management Cycle_. Boston: McBer and Company, 1975.

McClelland, D. C. _A guide to job competency assessment_. Boston: McBer and Company, 1976.

McClelland, D. C., & Burnham, D. H. Power is the great motivator. _Harvard Business Review_, 1976, _54_(2).

McClelland, D. C., & Dailey, C. Evaluating new methods of measuring the qualities needed in superior Foreign Service Information Officers. Boston: McBer and Company, 1973.

McClelland, D. C., & Winter, D. G. Motivating economic achievement. New York: The Free Press, 1969. In paperback, New York: The Free Press, 1971.

Miron, D., & McClelland, D. C. The impact of achievement motivation training among entrepreneurs in the United States. California Management Review, 1979, 13(4), 13.

Mischel, W. Personality and assessment. New York: Wiley, 1968.

Primoff, E. How to prepare and conduct job element examinations. Washington, DC: U.S. Civil Service Commission, 1977.

Rosenthal, R. Experimenter effects in behavioral research. New York: Irvington Publishers, 1976.

Spencer, L. M. The Navy leadership and management training program: A competency-based approach. Proceedings for the sixth symposium: Psychology in the Department of Defense. Colorado Springs: U.S. Air Force Academy Department of Behavioral Sciences and Leadership, April, 1978.

Winter, D. G., & McClelland, D. C. Thematic analysis: An empirically derived measure of the effects of liberal arts education. Journal of Educational Psychology, 1978, 70(1).
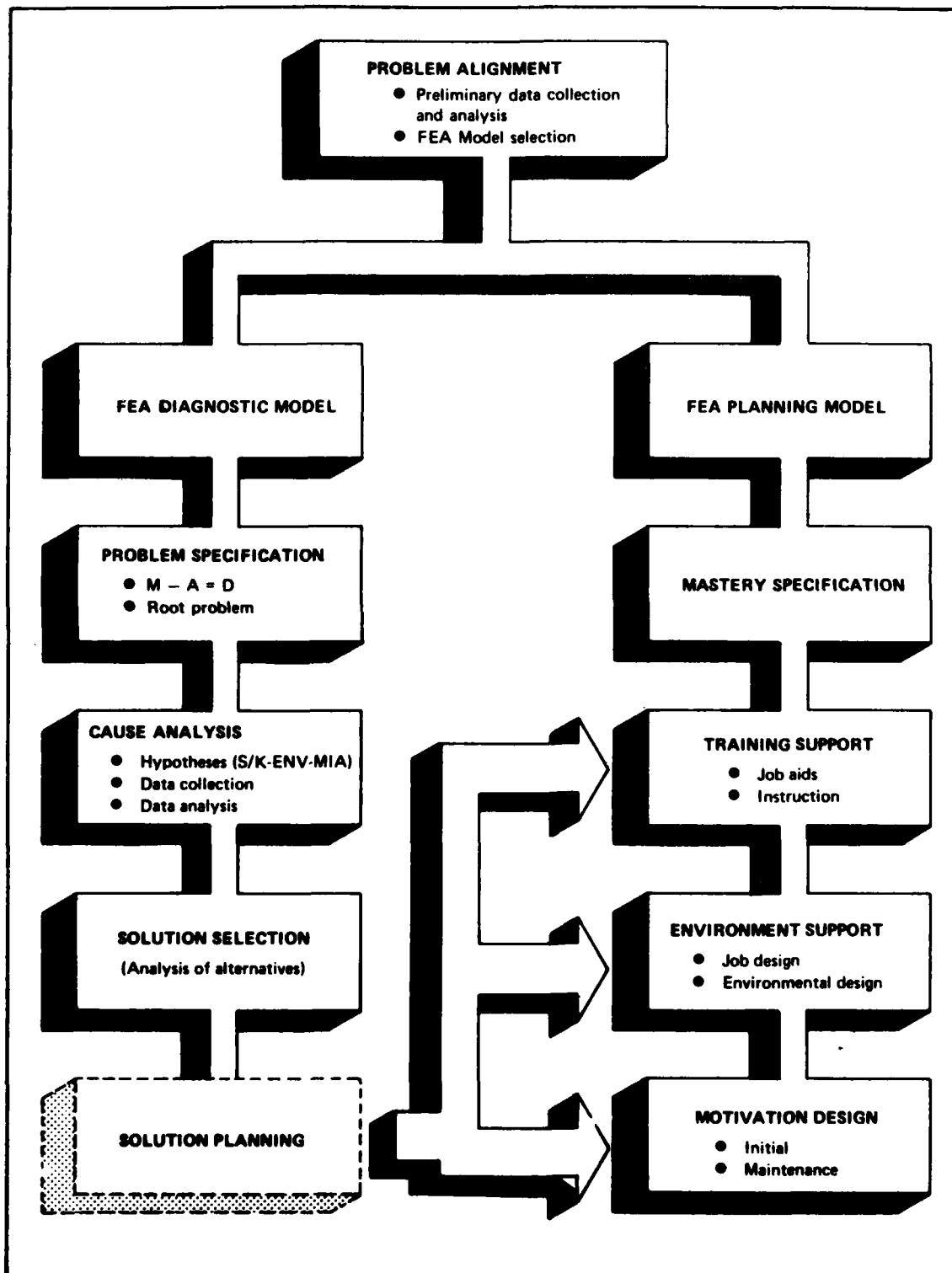
INCL 5

TITLE:

OUTLINE OF THE TWO MODELS FOR FRONT-END ANALYSIS

OUTLINE OF THE TWO MODELS FOR FRONT-END ANALYSIS

PROBLEM ALIGNMENT
- Preliminary data collection and analysis
- FEA Model selection

FEA DIAGNOSTIC MODEL

FEA PLANNING MODEL

PROBLEM SPECIFICATION
- M – A = D
- Root problem

MASTERY SPECIFICATION

CAUSE ANALYSIS
- Hypotheses (S/K-ENV-MIA)
- Data collection
- Data analysis

TRAINING SUPPORT
- Job aids
- Instruction

SOLUTION SELECTION
(Analysis of alternatives)

ENVIRONMENT SUPPORT
- Job design
- Environmental design

SOLUTION PLANNING

MOTIVATION DESIGN
- Initial
- Maintenance

Released by Joe Harless, Feb 1981. DJM

5-1

EXAMPLES OF CAUSE HYPOTHESES & DATA/EVIDENCE SOURCES
WITHIN CAUSE CATEGORIES

CAUSE CATEGORY	CAUSE HYPOTHESES	DATA/EVIDENCE SOURCES

SKILL/ KNOWLEDGE DEFICITS, S/K	• Don't know what
	• Don't know when
	• Don't know how
	• Don't know why
		• Formal/informal tests of performers' skills/knowledge
		• Examine available training
		• Examine actual/possible use of job aids
		• Interviews/questionnaires
		   — performers
		   — supervisors
		   — other knowledgeable persons

ENVIRONMENTAL OBSTACLES, ENV	• Lack of needed equipment, tools, reference materials
	• Faulty/poorly designed equipment, tools, reference materials
	• Inconvenient access to needed equipment, tools, reference materials
	• Tasks unnecessarily complex or difficult
	• No or poor supervision
	• Uncooperative coworkers
	• Unclear/unstated policies
		• Examine the performance situation
		• Observe performers in the situation
		• Interviews/questionnaires with performers, supervisors, other knowledgeable persons about:
		   — equipment, tools, reference materials
		   — possible task simplification
		   — supervision, coworkers, other aspects of the performance situation

MOTIVATION-INCENTIVE-ATTITUDE-FACTORS, MIA	• Enforcement problem
	• Feedback problem
	• Incentive problem
	• Reinforcement problem (e.g., wrong actions rewarded, no rewards)
	• Unpleasant/socially negative tasks
		• Examine the performance situation
		• Observe performers in the situation
		• Interviews/questionnaires:
		   — performers
		   — supervisors
		   — other knowledgeable persons

Released by Joe Harless, Feb 1981. BM

INCL 6

TITLE:

NEEDS ASSESSMENT AND HOLISTIC PLANNING:

AN ARRIVING TREND

NEEDS ASSESSMENT AND HOLISTIC PLANNING:

AN ARRIVING TREND

Roger Kaufman and Robert G. Stakenas

INCl 6

Abstract

Needs assessments are useful starting places for realistic, practical
planning. By using information from a correct needs assessment, curriculum
may be designed which will be useful to learners and to society. The value
of the concept of needs assessment seems readily apparent. However, con-
fusion and controversy concerning definition and scope has arisen among
practitioners and researchers. This article attempts to clarify conceptual
and philosophical issues and provide a synthesis. In doing so we specify
a model based on the relationships between organizational efforts, organi-
zational results and societal impact -- called the organizational elements
model. Distinctions are made between environments internal and external
to the educational agency. This, then, is a holistic approach because it
considers NOT simply teachers, learners, and curriculum, bu. seeks to link
school efforts and results to social requirements and realities. It sees
education in a social context, not just a schooling environment. The
article concludes with a discussion of arguments typically advanced for
or against needs assessment and planning based on what learners should know
and do in today's and tomorrow's society.

NEEDS ASSESSMENT AND HOLISTIC PLANNING: AN ARRIVING TREND

There can be little doubt that needs assessments, in one form or another, are becoming a part of educational planning and development. There are kits, admonitions, plans, concepts, and junk (Witkin, 1977). Most needs assessment procedures, but not all (Scriven and Roth, 1978), use some form of a discrepancy model[1], which asks the educational planner to identify and document the gaps between "what is" and "what should be".

With all of thees alternative views, controversy about "need" and needs assessment has surfaced. Much of the controversy is due to how the term "need" is defined and used. Although Kaufman (1972) suggests that "need" be defined as a gap between observed results and desired results as a possible way to remove surplus meanings from use of the term "need", his advice and limiting definition appear to be ignored frequently. By restricting the use of "need" to a gap in results, confusion can be avoided. Seeminly unaware of ambiguity which can be created when a term is used equivocally, some writers (e.g., Schriven and Roth, 1978) proceed to use "need" both as a noun (e.g., as a gap between actual and satisfactory) and as a verb (e.g., "A needs X"). Confusion is increased when they attempt to define needs in terms of process gaps (e.g., "treatment-need") and as a gap between actual and satisfactory (i.e., a "performance-need"). Users get confused as to whether a "need" is a gap in results or a way to elim- inate a gap in results. Can "need" be both a means and an end?

All gaps are discrepancies, but not all gaps are "needs". Taking a closer look, gaps or discrepancies can be observed in a number of different places within the complex parts of a school or school system. There can be gaps between present levels of resources and required levels of resources

(e.g., not enough money to purchase reading texts for learners). There can also be gaps in processes (e.g., learning materials are too difficult for one group but not another). And there may also be gaps in results (e.g., some high school graduates cannot read, write or compute well enough to get and keep a job, while others are). Here are three different kinds of gaps. Is each an appropriate example of a "need"?

Although the literature has referred to these different kinds of gaps as "needs", it is more useful to restrict the term "need" to gaps in one of the three types of results: products, outputs, and outcomes. (Definitions for product, output and outcome are given below.) By so doing, we can avoid the troublesome problem of confusing means and ends. When means and ends are allowed to remain confused, we may either allow a means to become an end in itself or to select inappropriate ends. We might rush in with a well-intentioned solution (such as a reading program) and find out later that it doesn't close the gap! And we may have selected the wrong solution to the learning problem because we did not "trace" the presenting problem (such as low reading scores) back into society where we might have found a more basic gap in valuing behavior relative to what should be read. The most basic gaps to which a needs assessment should address itself are the gaps found in society -- gaps in values, aspriations, making a living and the resulting standard of living. The subsequent "internal" needs assessment -- assessing gaps within education -- can be used to identify gaps in educational results and processes.

There is a rational and basic referent for "what should be" -- minimal self-sufficienty and contribution of individuals after they legally exit the formal educational system and enter society (Kaufman, 1972; Kaufman and Carron, 1980). This basic concept serves as the basis for a type of needs

assessment known as External (Kaufman, 1977b) because it has its roots in society, not within the school system. External needs assessment requires that educators begin planning with a determination of the requirements, current and future, for individual and collective self-sufficiency in society.

This, then, is a holistic approach in that it goes beyond the boundries of the school. A holistic approach provides a link between curriculum, instruction and society. By taking this larger, "Gestalt" or holistic approach we will be able to help learners to be successful in school as well as in society.

Self-sufficiency is defined as economic and social self-reliance (and hopefully contribution) when production (e.g., personal income) is greater than or equal to consumption (e.g., personal expenditures). Determination of self-sufficiency, as used here requires that use of indicators rather than absolute criteria or rigid fixed standards. Moreover, self-sufficiency is culturally dependent. What may be self-sufficiency for one ethnic group or socio-economic class may not be adequate for another. For example, self-sufficiency for indivduals in an underdeveloped, agrarian society may require different kinds of knowledge, skills, and income than those required by an individual in a developed, industrialized society. Yet it seems apparent that minimal self-sufficienty can and should be defined for individuals given their societal context. And, unseen to the casual observer, in self-sufficiency are personal factors such as self-concept, values and preferences.

One current limitation of an external needs assessment model is that current knowledge is not totally precise and complete. We only have available present economic indicators of self-sufficiency, and these do not

represent a full array of all possibly important parameters. But some-
thing is better than nothing. Indicators currently used include measures
of individual credit ratings, income level of specific individuals as
compared to others, ability to get and keep a job, individual income-
expernse ratios and expected levels of income and outgo (Hills and King,
Note 1), or freedom from requiring food stamps, welfare, unemployment or
other types of transfer payments. While still primitive, recent work in-
dicates that such measures may be derived, and further, decisions relative
to alternative public educational programs may be determined on the basis
of relating individual and public good, at least to a minimal level (Kaufman
and Carron, 1980). There are other indicators of self-sufficiency in the
intellectual and social domains of behavior. These would include ability
to seek and use information as a citizen, to establish and maintain positive
social relationships in the home, on the job and in society.

FORGING A NEW BOND WITH REALITY

Educators, and other interventionists such as legislators, lawyers,
social workers, counselors, physicians, community psychologists, and
clinical psychologists, should start their planning and needs assessments
with an external -- societal -- referent. This external starting place,
minimal self-sufficiency in today's and tomorrow's world, represents an
intended "outcome" for education.

An outcome is the impact an intervention has upon society. Outcomes,
then, serve as the basis for the determination of intended results as well
as realistic criteria for assessing the effectiveness of eudcational agencies
(Kaufman and Thomas, 1980). Outcomes are the "bottom line" criteria upon
which to begin and then to evaluate planning, program implementation and

impact.

To avoid some of the semantic problems, there are three types of
results to bear in mind: outcomes, outputs and products. Outcomes are
results in society such as citizens who are economically, socially and
intellectually self-sufficient. Outputs are the results of an organiza-
tion which are "delivered" to society, such as graduates who have acquired
the skills, knowledge and attitudes to be self-sufficient. Products are
the enroute results which an organization produces as it attempts to meet
its aims and purposes, e.g., indicators would include coures completed,
skills acquired, etc. Processes are the methods and means for obtaining
results, such as curriculum and instruction. In order to achieve products,
outputs, and outcomes through processes, inputs are required. Inputs are
ingredients and starting requirements which a system may use to achieve
its purposes, such as money, teachers, goals, objectives, facilities, and
the like. Thus there are five organizational elements which derive what
a organization does (inputs and processes), what an organization achieves
(products and outputs) and the impact all of these elements have in society
(outcomes). Figure 1 shows relationships among the "organizational elements",
the different levels of results and some examples of each (Kaufman and
English, 1979).

Insert Figure 1 about here

Although identifying gaps in inputs and processes is vital to increas-
ing organizational effectiveness and efficiency, we urge that input gaps
and process gaps not be classified as bonafide "needs" in order to avoid
semantic confusion and erroneous thinking. Inputs and processes have
been the subject of so-called needs assessments, but gaps in these areas

relate only by inference to results-oriented needs assessments. Gaps
in inputs and processes are "quasi-needs" at best. So discrepancy
analyses concerned with them might be termed "quasi-needs" assessments
with the caveat that they refer to assessing gaps in means and not ends.

Schools have been created to serve society. They are means to
societal ends. Therefore, if educational organizational efforts and
educational organizational results are going to have the most utility
for society now and in the future they should relate to societal out-
comes -- results external to the educational organization. The rela-
tionship between internal efforts and results, and external societal
results is shown in Figure 2.

```
-----------------------------
Insert Figure 2 about here
-----------------------------
```

If what we do and achieve in education is to have greater usefulness to
learners, then linkages must be established between that which educa-
tional agencies do to learners and the requirements for individual and
collective self-sufficiency and contribution in society. These link-
ages are depicted in Figure 3.

```
-----------------------------
Insert Figure 3 about here
-----------------------------
```

SOME PHILOSOPHICAL ISSUES

Planning for individuals and organizations, on the basis of an
external referent is basically different from other planning methods
and concepts (Simon, 1969; Kaufman, 1972; Provus, 1972; Kaufman &
English, 1979). Most existing models and planning efforts start with

an internal set of objectives and move to identify and meet organizational
goals and objectives; thus they assume that internally derived goals,
objectives, and results will satisfy external societal requirements.
But do they? Having to link the internal with the external is a diffi-
cult, not fully charted course. There are some who argue that it is
impossible or difficult at best, and even some who hold that it should
not be attempted. The work of Scriven and Roth (1978) seems to show
indications of their considering only the internal aspect of needs
assessment. Although Popham (1975) indicates awareness relative to
external considerations regarding selection of performance indicators
and criteria, he seems to advise against their use on practical grounds.

Following are some arguments and some rebuttals for consideration.
While they may represent legitimate concerns in the minds of those who
present them, they are not sufficient to keep education planners from
using an external referent.

The arguments against using an external referent seem to cluster
into five, sometimes overlapping, areas.

These arguments and rebuttals to them are presented below. It
should be noted that both sides have little empirical data to support
their positions. The arguments, therefore, are philosphical. They
will only be resolved when needs assessments using the external referent
are tried (Kaufman & Stakenas, Note 2). Following is a brief discussion
of each of the opposing arguments and responses to those positions.

Argument one: The economic utility referent of self-sufficiency
is too narrow and restrictive, and does not represent the full array
and richness of what an educational system should provide for learners,

because it is only an indicator and not sensitive to all people under all conditions, or both.

Rebuttal to argument one: While it is true that an "indicator" such as self-sufficiency does not describe the full array of skills, knowledges and attitudes that a school does or could deliver, it is suggested that self-sufficiency is the MINIMAL outcome requirement for a school, and that intangibles such as critical thinking, self-respect, good citizenship, and art appreciation, while they are important, are much more meaningful when an individual is achieving or is on the way to achieving self-sufficiency. An external needs assessment does not rule out such intangibles, it only requires that self-sufficiency be the basic, "bottom line" for educational planning.

Argument two: The economic utility data for self-sufficiency is difficult if not impossible to obtain.

Rebuttal to argument two: Much individual information about income and financial worth is private, and is protected by law. There are, however, indicators of self-sufficiency which will provide educational planners and evaluators with a more useful planning base than pure conjecture, or good intentions alone. Indicators include individual credit ratings, samplings of a variety of net worth statements for individuals typical of a part of the target population, poverty-level data for a region or district or the absence of having to get unemployment, welfare, food stamps or other charity. Thus, while the data might be expensive or difficult to obtain, useful indicators may be derived, and these provide a better planning base than what is currently being used.

Argument three: Organizational focus and change of this major
magnitude is threatening to educators and parents, and thus will not
be permitted.

Rebuttal to argument three: It is true that substantial change
tends to be threatening to many individuals and that those who advocate
or attempt it are often "punished" (Reusch, 1975). It also seems to
be true that change-for-change-sake is more threatening than change
which makes sense to the individuals being asked to change. While
much change which has been attempted in schools (and indeed in other
social agencies) has not been wildly successful, change has occurred.
We suggest that when change is introduced which seems rational as well
as logical, much of the opposition (but, not all) will be reduced. By
basing change requirements on external realities such as self-sufficiency,
and not upon internal considerations such as busing, team teaching,
behaviorism, modular scheduling, or computer-assisted instruction, we
suggest that people will have better reason for attempting change.
Many of our previous attempts at change only proposed to exchange one
"means" for another (busing as a substitute or adjunct to curriculum,
for example). This type of exchange, rather than "deep change"
(Kaufman & English, 1979; Kaufman & Stakenas, Note 2) is less than
productive in most instances, and deserves resistance.

Argument four: The linkages between educational efforts and
results and societal outcomes are not available, and are tenuous to
build.

Rebuttal to Argument four: There are neither data nor models
which clearly link outcomes with the other educational elements of
inputs, processes, products, and outputs. This has not been a central

issue until now, and the procedures and models for so doing are only
now being considered. This argument, then, has currency. However, we
suggest that with the understanding and commitment to planning using
an external referent, then such linkages can and will be developed
(Kaufman & Carron, 1980). There is another aspect to this argument;
perhaps some current curricular offerings might have to be changed.
Justifying some existing courses and curriculum in schools might be
increasingly difficult if one were to put primary emphasis for minimal
products, outputs, and outcomes upon self-sufficiency. Clear linkages
do not currently exist, nor does any justification for the effective-
ness of current offerings in helping today's and tomorrow's citizens
(Sobel, 1980).

Argument five: Educators should not set educational goals, but
only carry out policy which is set by legislators, executive branches
of government, or policy boards outside of the schools.

Rebuttal for Argument five: It is true that in most cases
legislators, de facto, set educational goals and objectives by the way
in which they fund (thus "enable") education. By attaching how-to-do-it
provisos to funding bills, they not only set the intended results but
also prescribe the inputs and processes. Actually, they most often
prescribe inputs and processes that shape the products and outputs.
And when it doesn't work out well they blame education and tinker once
more with inputs and processes. This situation is "what is". It does
not have to be "what should be" or "what will be".

Legislators are not usually educational experts. They are elected
representatives with a strong instinct for survival and usually a desire

to help their constituency. They are neither evil nor destructive by
nature, and they often legislate inputs and processes in frustration
over not having some useful criteria by which to judge and provide for
the schools (Carron, 1977).

By using planning data which comes from an external referent, the
legislator and the executive branch will be able to make more rational,
useful decisions about education. By involving them in the needs assess-
ment and by providing them information on the basis of self-sufficiency
(which makes sense to most lay persons), educators may forge a new bond
with reality.

A frequently encountered subset of this argument is that planned
change is impossible within a school or school system. If change is
to occur, they argue, then it has to be prescribed at the highest
levels. This concept has just no support. Change is possible if
people are convinced changed is useful and desirable (Greenwald, 1973).
A "victim" mentality which presupposes that change is impossible will
usually result in a self-fulfilled prophecy. It does not have to be
so.

IMPLICATIONS FOR SCHOOLS

The effectiveness and efficiency of schools may be dramatically
improved by adopting a holistic view of the relationship between schools
(as means, or processes) and the societal end of self-sufficiency.
Instead of educational processes which end at the front door of the
schoolhouse, this approach requires that the planning, design, develop-
ment, evaluation, and revision referent for education begin in the

external world outside of schools. A model for deriving and designing useful education is presented in Figure 4.

- - - - - - - - - - - - - - -

Insert Figure 4 about here

- - - - - - - - - - - - - - -

By starting the educational design and development process with external considerations, we are more likely to select and organize inputs and processes that will result in socially valued results and, consequently, increase public acceptance and support for the educational enterprise.

This process is dramatically different than that which is currently used in education (and indeed training as well). It seems to be a rational, effective way of proceeding. It is likely to result in less "educational scrap" (Lessinger & Conners, 1978) and less public disdain for education. It does not seem to make sense to begin and end educational needs assessment and planning at the front door of the schoolhouse. Learners do not stop there, so why should our planning and evaluation?

CONCLUSIONS

To base something as important -- crucial in fact -- as education on the basis of results "internal" to education seems to be no longer acceptable. We must begin to portray new realities and relationships for decision-makers and legislators and move towards linking external results in society with those internal to education. It is not only logical, but it is rational as well.

REFERENCE NOTES

1. Hills, J.R. and King, F.J. "Construct validity of the Florida
    functional literacy test". Tallahassee: Department of
    Education, 1978.

2. Kaufman, R. and Stakenas, R.G. Organizational renewal through
    staff development and system planning. Tallahassee, Florida:
    Florida Department of Education, November, 1978.

REFERENCES

Carron, A.S. "Needs assessment in government: Rearranging the deck chairs on the ship of state". Educational Technology, November 1977, 17(11).

Drucker, P. Management: Tasks, responsibilities, practices. New York: Harper and Row, 1973.

Greenwald, H. Direct Decision Therapy. San Diego, Edits, 1973.

Kaufman, R.A. Educational system planning. Prentice-Hall Inc., Englewood Cliffs, New Jersey, 1972.

Kaufman, R. and Carron, A.S. Utility and self sufficiency in the selection of educational alternatives, Journal of Instructional Development. Vol. 4 No. 1, Fall 1980, pp 17-27.

Kaufman, R. A. and English, F.W. Needs assessment: Concept and application. Educational Technology Publishers, Englewood Cliffs, New Jersey, 1979.

Kaufman, R. and Thomas, S. Evaluation Without Fear. New York, New Viewpoints/Franklin Watts, 1980.

Lessinger, L. M. and Connors, J. Thorough and efficient. Stewardship Press, Raliegh, N.C., 1978.

Popham, J. Educational evaluation. Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1975.

Provus, M. Discrepancy evaluation. Berkley, California, McCutchen Press, 1972.

Reusch, J. Knowledge in action: Communication, social operations, and management. New York: Aronson, 1975.

Scriven, M. and Roth, Jane. "Needs assessment: Concept and practice". New Directions for Program Evaluation. I. Spring, 1978.

Simon, H. The sciences of the artificial. M. I. T. Press, Cambridge, Massachusetts, 1969.

Sobel, I. Human Capital revolution in economics development: Current status, expectations and realities. Comparative Education Review, November 1978.

Witkin, Belle Ruth. "Needs assessment kits, models and tools". Educational Technology, Volume XVII, No. 11, November 1977, pp. 5-18.

FOOTNOTES

Requests for reprints should be sent to either author at the Center for Needs Assessment and Planning, Florida State University, Tallahassee, Florida 32306.

[1]There appears to be a misconception on the part of some that a discrepancy model is a deficiency or deficit model of need. Careful analysis of definitions is required to make this determination. A discrepancy model does not have to be a deficiency or deficit model.

FIGURE CAPTIONS

Figure 1. Relationships between organizational elements and results
and some examples of each (Based on Kaufman & English, 1979).

Figure 2. The suggested relationships between internal organizational
efforts and results and external societal results (after
Kaufman & English, 1979). Comgining both internal and
external viewpoints yields a holistic emphasis.

Figure 3. Bridging the internal-external interface by establishing
required linkages between organizational efforts, organiza-
tional results and societal results.

Figure 4. A strategy for educational system design.

TOP

OUTCOMES

e.g.
Current and future
individual and
group self—
sufficiency and
contribution

OUTPUTS

e.g.
Certified
completion
of graduates
Job—entry
skills
Licensures

PRODUCTS

e.g.
Courses
completed
Skills,
knowledges,
and attitudes
acquired

PROCESSES

e.g.
Staffing
patterns
Competency
based
vocational
education
Open plan
Inquiry
method
Individualized
learning
Currriculum

INPUTS

e.g.
Money
Time
Buildings
Teachers
Learners
Needs
Problems
Goals
Objectives
Curricu-
lum
materials

TOP

ORGANIZATIONAL EFFORTS

Inputs   Processes

ORGANIZATIONAL RESULTS

Products   Outputs

SOCIETAL RESULTS

Outcomes

REQUIRED LINKAGES

TOP

OUTCOMES

OUTPUTS

PRODUCTS

PROCESSES

INPUTS

Determine current minimal requirements for self—sufficiency

Determine future minimal requirements for self—sufficiency

Determine future desired requirements for self—sufficiency and contribution

Select current and future requirements

Determine graduation requirements

Determine course completion requirements

Determine effective and efficient methods

Determine required personnel & other resources

Obtain resources and implement processes

INCL 7

TITLE:

FRONT-END ANALYSIS (FEA) OVERVIEW

INCL 7

FRONT END ANALYSIS (FEA) OVERVIEW

Mr. Taft M. Joseph, Jr.
Chief, Analysis
Directorate of Training Developments
United States Army Field Artillery School
Fort Sill, Oklahoma   73503
PHONE 405-351-3300
AUTOVON 639-3092

7-1

TRADOC PAM 350-30 HAS BEEN THE MAIN DOCUMENT FOR PERFORMING FRONT-END ANALYSIS (FEA) WITHIN THE TRADOC COMMUNITY FOR SEVERAL YEARS. THE ISD MODEL OUTLINED IN THE PAM AND DEVELOPED BY FLORIDA STATE UNIVERSITY IS EXCELLENT FOR ANALYZING A JOB IN WHICH AN INDIVIDUAL IS ONLY CONCERNED WITH PERFORMING MOTOR-TYPE TASKS. HOWEVER, ONCE WE TRY TO DETERMINE THE COLLECTIVE AND SUPERVISORY TASKS, THE PROCEDURES FAIL TO WORK AS WELL AND IT IS DIFFICULT TO PRODUCE A COMPLETE ANALYSIS BASE AND DE-SIGN APPROPRIATE TRAINING PRODUCTS. AS ONE OF THE RETO PILOT SCHOOLS, USAFAS (RETO) HAS, OVER A TWO-YEAR PERIOD, AMPLIFIED UPON THE EXCELLENT ISD PROCEDURES AND MET THE LONG-STANDING CHALLENGE TO DEVELOP A METHOD-OLOGY THAT WOULD ENABLE AN ANALYST TO IDENTIFY WHAT SUPERVISORS DO IN THEIR FA SPECIALTY AREAS AND FURTHER TO DEVELOP TRAINING FROM THESE TASKS. THIS METHODOLOGY, WHICH CONCENTRATES HEAVILY ON THE TOTAL ORGAN-IZATION, DOVETAILS WITH THE CURRENT TRADOC COLLECTIVE TRAINING ANALYSIS DOCTRINE. BY USING THE ARTEP TASKS DERIVED FROM THIS TOP-DOWN APPROACH, WE ARE FINALLY ABLE TO DEVELOP THE MUCH-NEEDED ARTEP/INDIVIDUAL TASKS CROSSWALK FOR THE FIELD. BEFORE WE GET INTO THE CROSSWALK METHODOLOGY, LET US FIRST EXAMINE THE OVERALL PROCESS.

COLLECTIVE FEA

↓

ARTEP TASKS

↓

INDIVIDUAL FEA

* WHAT SHOULD BE DONE

* WHAT IS ACTUALLY BEING DONE

* WHAT SHOULD BE TRAINED

* WHERE TO TRAIN

THE COLLECTIVE FEA RESULTS IN THE IDENTIFICATION OF ARTEP TASKS.
THESE ARTEP TASKS ARE THEN USED AS A STARTPOINT FOR THE DEVELOPMENT OF
INDIVIDUAL TASKS. A NATURAL DIALOGUE IS ESTABLISHED BETWEEN THE ANA-
LYST RESPONSIBLE FOR INDIVIDUAL TASK IDENTIFICATION AND PRODUCTS AND
THE COLLECTIVE ANALYST WHO MUST PRODUCE THE ARTEP. THIS DIALOGUE
RESULTS IN A REFINEMENT PROCESS BETWEEN THE DEVELOPMENT OF INDIVIDUAL
AND COLLECTIVE ANALYSIS AND INITIATES THE AUDIT TRAIL PROCEDURES THAT
WILL EVENTUALLY RESULT IN A COMMON ANALYSIS BASE. TO ARRIVE AT A
FINAL ANALYSIS BASE A FRONT-END ANALYSIS (FEA) MUST BE ACCOMPLISHED.

AT THE INSTITUTION WE ARE CAPABLE OF DEVELOPING THE DESIRED FA DOC-
TRINE AND FURTHER HAVE GREAT CONTROL OVER THE STRUCTURE OF OUR OR-
GANIZATION, TOE OR TDA. OUR ANALYSTS CAN THEREFORE BY USING DOCTRINE,
STRUCTURE, AND SUBJECT MATTER EXPERTS (SME's) CAN DERIVE WHAT THE
INSTITUTION FEELS SHOULD BE DONE AND WHO SHOULD DO IT. THE MAJOR
RESULTS OF THIS FIRST STEP ARE INITIAL TASKS LISTS DEVELOPED IN A
MANNER THAT PRODUCES A CORRELATION OR CROSSWALK BETWEEN ARTEP UNIT
TYPE TASKS AND THE INDIVIDUAL TASKS REQUIRED TO SUPPORT THEM. IN
ORDER TO ACCURATELY DEPICT A TOTAL PICTURE OF THE ORGANIZATION OR
ONE OF ITS SUB-SYSTEMS A MODEL MUST BE USED THAT CONSIDERS THE ASPECTS
OF SUPERVISION, GOALS OF THE ORGANIZATIONS, EQUIPMENT, AND THE INDIVID-
UAL TASKS PERFORMED BY SUBORDINATES.

SHOW SLIDE #2

	LOW	MODERATE	HIGH	
THIRD LINE SUPERVISOR	INVOLVEMENT WITH TASK LIST A	INVOLVEMENT WITH TASK LIST B	INVOLVEMENT WITH TASK LIST C	PERFORMS TASK LIST D
SECOND LINE SUPERVISOR	MODERATE INVOLVEMENT WITH TASK LIST A	HIGH INVOLVEMENT WITH TASK LIST B	PERFORMS TASK LIST C	
FIRST LINE SUPERVISOR	HIGH INVOLVEMENT WITH TASK LIST A	PERFORMS TASK LIST B		
SUBORDINATE PERFORMER	PERFORMS TASK LIST A			

NOTE: ABOVE MODEL DEVELOPED BY MR. JOSEPH (USAFAS) NOV 1977

TO RELATE THE SUPERVISOR TO THE SUBORDINATE WITHIN AN ORGANIZATION,
THE PRINCIPLE OF INVOLVEMENT HAS BEEN ESTABLISHED. WHEN A SUBORDINATE
PERFORMER PERFORMS A TASK (CAN BE ANY GRADE - FOR EXAMPLE: E-1 OR O-3),
THE FIRST LINE SUPERVISOR IS HIGHLY INVOLVED WITH THE INDIVIDUAL AS HE
PERFORMS THAT TASK. THE SECOND LINE SUPERVISOR IS MODERATELY INVOLVED
WITH THE TASK BEING PERFORMED. ADDITIONALLY, THE THIRD LINE SUPERVISOR
HAS LOW INVOLVEMENT THROUGH THE SECOND AND FIRST LINE SUPERVISORS.
THE SUPERVISORS, IN ADDITION TO THEIR LEVELS OF INVOLVEMENT WHEN A
TASK IS BEING PERFORMED BY A SUBORDINATE, MAY SOMETIMES BE REQUIRED TO
PERFORM THE SAME TASK THEMSELVES. THEY WILL ALSO BE RESPONSIBLE TO
PERFORM TASKS WHICH THEY ALONE MUST DO. THE PERFORMER WILL ALWAYS BE
THE MOST INVOLVED AND THE DEGREE OF INVOLVEMENT DECREASES AS WE PROGRESS
UP THE CHAIN OF COMMAND. AUTHORITY, ON THE OTHER HAND, WILL INCREASE
AS WE PROGRESS UPWARD.

THIS ORGANIZATIONAL MODEL CAN BE USED TO DEVELOP INDIVIDUAL TASKS IN
CONJUNCTION WITH AN ARTEP TASK. THE HEIRARCHY IS SHOWN ALONG THE LEFT
SIDE. ANY LEVEL OF SUPERVISION ABOVE THE THIRD LINE SUPERVISOR IS
CONSIDERED TO HAVE LOW INVOLVEMENT. LEVELS OF INVOLVEMENT WILL CHANGE
IN THE ORGANIZATION DEPENDING UPON WHO IS PERFORMING THE TASK. THE
SUBORDINATE PERFORMER AND THE SUPERVISORS ALL HAVE TASKS WHICH THEY
MUST PERFORM IN CONCERT, IF THE ARTEP TASK IS TO BE PROPERLY EXECUTED.
THE RELATIONSHIP BETWEEN THE SUBORDINATE PERFORMER AND THE SUPERVISORY
LEVELS HAS BEEN PREVIOUSLY DISCUSSED. WHEN THE FIRST LINE SUPERVISOR
PERFORMS TASKS, THE NEXT HIGHER SUPERVISOR (THE SECOND LINE SUPERVISOR)
IS HIGHLY INVOLVED AND THE THIRD LINE SUPERVISOR BECOMES MODERATELY
INVOLVED. THE THIRD LINE SUPERVISOR, WHO HAD LOW INVOLVEMENT WITH THE
SUBORDINATE PERFORMER'S TASKS, IS SHOWN TO HAVE HIGH INVOLVEMENT WITH
THE TASKS OF THE SECOND LINE SUPERVISOR. IT CAN BE NOTED THAT THE
THIRD LINE SUPERVISOR ALSO HAS TASKS THAT HE MUST PERFORM.

<u>SHOW SLIDE #3</u>

ORGANIZATION: LANCE FIRING PLATOON

ARTEP TASK: POSITION, CHECK, LAY, ARM AND FIRE THE MISSILE ROUND. (3-1-4-5)

	LOW	MODERATE	HIGH	OBTAIN TRANSPORT LOCK PIN, UPPER POD
01-02	INVOLVEMENT WITH E3-E5	INVOLVEMENT WITH E6	INVOLVEMENT WITH E7	APU AND GREEN APU STREAMERS ETC.
E7	MODERATE INVOLVEMENT WITH	HIGH INVOLVEMENT WITH	LAY THE LAUNCHER FOR AZIMUTH (REMOTE THEODOLITE)	
E6	HIGH INVOLVEMENT WITH E3-E5	POSITION LAUNCHER OVER FIRING POINT		
E3-E5	LOWER/RAISE THE REAR RAMP ETC.			

A MORE PRACTICAL, MILITARY APPLICATION CAN BE SEEN BY AN ANALYSIS OF THE
LANCE FIRING PLATOON. WORKING WITH THE ORGANIZATION OF THE LANCE FIRING
PLATOON, THE ANALYST CONCENTRATES ON THE ARTEP TASK SHOWN. BY USING THE
MODEL, ALONG WITH THE PERTINENT REFERENCES, AND HAVING A KNOWLEDGE OF
THE JOBS WITHIN THE LANCE FIRING PLATOON, THE ANALYST BEGINS THE SYSTE-
MATIC DEVELOPMENT OF THE INDIVIDUAL TASKS FOR EACH POSITION AS THEY
RELATE DIRECTLY TO THE ARTEP TASK "POSITION, CHECK, LAY, ARM AND FIRE
THE MISSILE ROUND".

A SIMPLE EXAMPLE OF AN ORGANIZATION AND ITS COLLECTIVE AND INDIVIDUAL
RELATIONSHIPS CAN BE SEEN IN THIS SLIDE. NOTE THAT THE TASKS CAN NOW
ALL BE WRITTEN USING PERFORMANCE-ORIENTED ACTION VERBS. BY DOING THIS
AND SHOWING ONLY THE DEGREE OF INVOLVEMENT, WE CAN GET AWAY FROM USING
NEBULOUS ACTION VERBS, SUCH AS "SUPERVISE," "MANAGE," "CONTROL," AND
GENERALIZED TASK STATEMENTS FOR THE SUPERVISOR WHICH SERIOUSLY CLOUD
THE ISSUE, CAUSE REDUNDANCY, AND SERVE NO USEFUL PURPOSE IN THE TRAIN-
ING DESIGN OF TASKS FOR THE SUPERVISOR.

THE ANALYST ACTUALLY IDENTIFIED 32 TASKS THAT WERE PERFORMED BY THE
LOWER SKILL LEVELS SHOWN (E-3 - E-5) BUT, FOR EXAMPLE PURPOSES, ONLY
THE ONE TASK "LOWER/RAISE THE REAR RAMP" IS SHOWN TO ILLUSTRATE USE OF
THE MODEL. THE SUPERVISORS (E-6, E-7, 0-1 - 0-2), IN ADDITION TO
THEIR SUPERVISORY INVOLVEMENT, ARE SHOWN TO HAVE PERFORMANCE TASKS
WHICH THEY THEMSELVES MUST PERFORM. THESE TASKS ARE ALL DEVELOPED
BASED ON THE ONE ARTEP TASK SHOWN.

A CROSSWALK RELATIONSHIP WITHIN THE ORGANIZATION CAN BE DEVELOPED AS
SHOWN IN THIS MATRIX.

CROSSWALK OF INDIVIDUAL TASKS WITH ARTEP TASK 3-1-4-5 "PERFORM, CHECK, LAY, ARM & FIRE THE MISSILE ROUND

ASK	E3-E5	E6	E7	01-02	03
1	P	HIGH	MOD	LOW	LOW
2	P	HIGH	MOD	LOW	LOW
3	P	HIGH	MOD	LOW	LOW
4	P	HIGH	MOD	LOW	LOW
5	P	HIGH	MOD	LOW	LOW
6		P	HIGH	MOD	LOW
7			P	P/S	HIGH
8				P	HIGH

P   = PERFORMS TASK
P/S = PERFORMS OR SUPERVISES TASK DEPENDING ON THE SITUATION
HIGH = HIGH SUPERVISORY INVOLVEMENT WITH TASK
MOD = MODERATE SUPERVISORY INVOLVEMENT WITH TASK
LOW = LOW SUPERVISORY INVOLVEMENT WITH TASK

WE NOW HAVE IDENTIFIED WHO PERFORMS, WHO PERFORMS AND SUPERVISES, OR
WHO ONLY SUPERVISES (DEGREE OF INVOLVEMENT) EACH TASK. THIS METHOD NOT
ONLY PROVIDES A CORRELATION BETWEEN THE COLLECTIVE AND INDIVIDUAL TASKS
OF THE LANCE FIRING PLATOON, BUT IT ALSO BEGINS TO GIVE IDICATIONS OF
THE TRAINING NEEDS FOR ALL OF THE INDIVIDUALS WITHIN THE PLATOON. IN
THE PAST, WHERE WE HAVE EITHER UNDERTRAINED OR OVERTRAINED IN A CERTAIN
COURSE OF INSTRUCTION, THIS METHOD ALLOWS US TO TAILOR A COURSE MORE
CLOSELY WITH WHAT AN INDIVIDUAL MUST ACTUALLY DO IN HIS FUTURE JOB.
THIS IS ESPECIALLY CRITICAL FOR OFFICERS WHO ENTER THE SYSTEM DIRECTLY
AFTER COMMISSIONING.

UP TO THIS POINT WE HAVE ONLY DETERMINED WHAT WE THINK "SHOULD BE"
THE FIRST STEP IN THE FEA PROCESS.

COLLECTIVE FEA

⬇

ARTEP TASKS

⬇

INDIVIDUAL FEA

✓ • WHAT SHOULD BE DONE

• WHAT IS ACTUALLY BEING DONE

• WHAT SHOULD BE TRAINED

• WHERE TO TRAIN

TO PREVENT THE INSTITUTION FROM BECOMING TOO PAROCHIAL AND TO PROVIDE
BETTER TRAINED INDIVIDUALS AND TRAINING PRODUCTS TO THE FIELD WE MUST
PURSUE THE SECOND STEP OF THE FEA PROCESS AND DETERMINE "WHAT IS" AND
WHO IS ACTUALLY DOING IT. THIS CAN BE ACCOMPLISHED THROUGH THE EX-
TENSIVE USE OF THE INTERVIEW PROCESS OF JOB INCUMBENTS AND THEIR SUPER-
VISORS, AND THROUGH THE USE OF QUESTIONNAIRES AND SURVEYS. WE CONSIDER
THE INTERVIEW COUPLED WITH SPECIFIC JOB ORIENTED QUESTIONNAIRES THE MOST
VALID APPROACH. WE USE SCALES RECOMMENDED BY DA PAM 351-4 AND THOSE
WHICH WE HAVE INTERNALLY DEVELOPED TO COMPLIMENT OUR SUPERVISORY IN-
VOLVEMENT APPROACH.

CRITERIA / SCALES

HELPS   PERFORM / SUPERVISE

DETERMINE-   SUPERVISORY INVOVLEMENT

WHAT IS?   FREQUENCY

BY WHOM?   CRITICALITY

                         DIFFICULTY

ONCE WE OBTAIN THIS DATA WE ARE ABLE TO INSERT IT IN A DECISION TREE
MODEL WHICH IS COMPUTER ASSISTED PROVIDING US WITH AN ANALYSIS DATA BASE.
ACQUIRED DATA IS NATURALLY USELESS UNLESS WE HAVE A CREDITABLE WAY OF
GAINING AN OUTPUT. IN THIS CASE USE OF THE VARIOUS SCALES AND DATA
PROVIDE US THE NEEDED OUTPUTS OF WHAT TASKS ARE TO BE TRAINED (STEP 3
OF AN FEA PROCESS).

SHOW SLIDE #7

COLLECTIVE FEA

↓

ARTEP TASKS

↓

INDIVIDUAL FEA

✓ * WHAT SHOULD BE DONE

✓ * WHAT IS ACTUALLY BEING DONE

* WHAT SHOULD BE TRAINED

* WHERE TO TRAIN

AN ADDITIONAL OUTPUT FROM THIS DECISION PROCESS IS DEGREE OF TRAINING.
OUR MODEL DIFFERS GREATLY FROM OTHERS PREVIOUSLY DEVELOPED IN THAT WE
ARE ABLE TO DETERMINE DEGREE OF TRAINING FOR SUPERVISORS AS WELL AS
SUBORDINATES.

SHOW SLIDE #8

OVERTRAIN - TRAINEE MUST BE TRAINED TO A HIGH STANDARD OF RETENTION.
THIS IS ACCOMPLISHED BY REINFORCEMENT TRAINING.

TRAIN - TRAINEE MUST BE ABLE TO DEMONSTRATE PROFICIENCY IN PERFORMING
TASK AT SPEED REQUIRED ON THE JOB.

SOME TRAINING - TRAINEE MUST BE TRAINED, BUT NOT NECESSARILY TO THE
PROFICIENCY/SPEED REQUIRED TO PERFORM THE TASK ON THE
JOB.

NO TRAINING - FORMAL TRAINING NOT REQUIRED. SKILLS CAN BE ACQUIRED
ON THE JOB.

THESE DEFINITIONS FURTHER EXPLAIN THE ADDITIONAL OUTPUT OF DEGREE OF
TRAINING RECEIVED FOR EACH TASK. ONCE THIS TYPE INFORMATION IS PASSED
TO THE DESIGNER & DEVELOPER, A MORE ACCURATE AMOUNT (OR INTENSITY) OF
TRAINING CAN BE DETERMINED DEPENDING ON THE INDIVIDUAL'S POSITION IN THE
ORGANIZATION.

WE CAN NOW TRANSGRESS TO THE LAST STEP OF THE FEA PROCESS, THAT OF
DETERMINING "WHERE TO TRAIN".

<u>SHOW SLIDE #9</u>
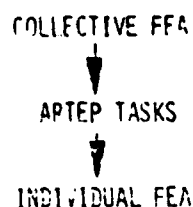
COLLECTIVE FEA

↓

APTEP TASKS

↓

INDIVIDUAL FEA

✓ • WHAT SHOULD BE DONE

✓ • WHAT IS ACTUALLY BEING DONE

✓ • WHAT SHOULD BE TRAINED

• <u>WHERE TO TRAIN</u>

7-16

WE CAN, OF COURSE, BEGIN ANALYZATION / DOCUMENTATION (CONDITIONS, STANDARDS, ELEMENTS, ETC.) OF TASKS ONCE THE BOARD HAS SELECTED THEM FOR TRAINING. WHICH COULD BEGIN PRIOR TO OUR LAST STEPS AND NORMALLY DOES TO SAVE TIME AND TO KEEP THE ANALYSTS BUSY. THE "WHERE TO TRAIN" OR SITE SELECTION PROCESS CONSIDERS THE FOLLOWING CRITERIA PRIOR TO MAKING A DECISION ON A CERTAIN TASK.

<u>SHOW SLIDE #IU</u>

WHERE TO TRAIN CRITERIA:

* CONSEQUENCES OF INADEQUATE PERFORMANCE

* DELAY TOLERANCE

* IMMEDIACY OF PERFORMANCE

* EQUIPMENT AVAILABILITY

THE MAJOR OUTPUT FROM THIS DECISION PROCESS BY THE SITE SELECTION BOARD
IS THE DETERMINATION OF WHERE A TASK SHOULD BE TAUGHT.

<u>SHOW SLIDE # 11</u>

RS -   <u>RESIDENT SCHOOL</u> - THE ARMY BRANCH SCHOOLS (i.e., FIELD
       ARTILLERY SCHOOL, INFANTRY SCHOOL, ETC)

ISS - <u>INSTALLATION SUPPORT SCHOOL</u> - THE SCHOOLS CREATED AT
       MAJOR ARMY INSTALLATIONS, (i.e., ARMORER SCHOOL, CBR
       SCHOOL, ETC)

FOJT - <u>FORMAL ON-THE-JOB TRAINING</u> - FORMAL TRAINING CONDUCTED
       BY UNIT PERSONNEL

STEP - <u>SELF-TEACHING EXPORTABLE PACKAGES</u> - MATERIAL THAT IS
       SENT TO A UNIT BY THE BRANCH SCHOOL (i.e., CORRESPONDENCE
       COURSES, TEC, ETC)

AFTER THE BOARD DETERMINES WHERE EACH TASK SHOULD BE TAUGHT, THEY
SOULD MAKE THESE RECOMMENDATIONS THAT WOULD BE CONSIDERED FOR INCLUSION
IN THE TRAINING STRATEGY.

SHOW SLIDE #12

ORGANIZATION: LANCE FIRING PLATOON

STEP TASK: POSITION, CHECK, LAY, ARMY AND FIRE THE MISSILE ROUND. (3-1-4-5)

| INDIVIDUAL TASKS | CROSSWALK | | | | | MOS | | | LOCATION OF TASK DATA AND PRIMARY TRAINING REFERENCES |
	E1-E5 (SL 1/2)	E6 Section Chief(SL3)	E7 Firing PLT SGTS(SL4)	O1/O2 Firing PLT LDR	O3 Btry Cdr.	I	II	III	
2853.01-0070 Lower/ Raise the rear ramp	A/1	0	0	0	0				TM 9-1425-485-10-2
2853.1-0080 Lower/ Raise the cab top	A/1	C/0	C/0	C/0	C/0				FM 6-15D1/2 TM 9-1425-485-10-2
2853.01-0330 Emplace the firing device at the firing point	A/1	C/0	C/0	C/0	C/0				FM 6-15D1/2 TM 9-1425-485-10-2
2853.01-0430 Set up/ Recover the target set	A/1	C/1	C/1	C/1	C/0				FM 6-15D1/2 TM 9-1425-485-10-2
2853.01-0190 Install/ Remove control surfaces	A/1	C/1	C/1	C/0	C/0				FM 6-15D1/2 TM 9-1425-485-10-2
2853.01-0040 Position the launcher over the firing point		A/1	C/1	C/0	C/0				FM 6-15D3 TM 8-1425-485-10-2
2853.01-0300 Lay the launcher for azimuth (Remote Theodolite)			A/1	B/1	C/0				FM 6-15D4 TM 9-1425-485-10-2
2853.01-0440 Obtain transport lock pin, upper rod APU and green APU streamers				A/1	C/0		X		FM 6-Officer TM 9-1425-485-10-2

CODES

A PERFORM
B PERFORM AND SUPERVISE
C SUPERVISE

0 NO FORMAL TRAINING
1 RESIDENT SCHOOL
2 INSTALLATION SUPPORT SCHOOL
3 FORMAL ON-THE-JOB TRAINING
4 SELF-TEACHING EXPORTABLE PACKAGE

7-19

THE FINAL RECOMMENDATIONS MADE FOR FINALIZATION OF THE TRAINING
STRATEGY WILL BE THE CAPSTONE OF TRAINING FOR THE FA SPECIALTY AREAS
BY MOS AND OFFICER SSI. AFTER APPROVAL BY THE COMMANDANT WE WILL
HAVE THE GREEN LIGHT FOR THE DEVELOPMENT OF TRAINING PRODUCTS BY
TASK.

ADDITIONALLY, THERE APPEARS TO BE A GREAT DEMAND FOR A CROSSWALK
DELIVERABLE THAT WOULD PROVIDE KEY INFORMATION TO THE TRAINERS IN THE
FIELD. THIS "STRAWMAN" EXAMPLE COULD ASSIST THE UNIT IN CONCENTRATING
ITS TRAINING EFFORT ON THOSE INDIVIDUAL TASKS THAT AFFECTED A DEFICI-
ENT ARTEP AREA. THE CODE SHOWS THE RELATIONSHIP OF EACH INDIVIDUAL TO
EACH TASK AND WHERE THE INDIVIDUAL RECEIVES TRAINING FOR THE TASK, IF
ANY.

FOR EXAMPLE, THE CODE "A" SHOWS THAT TASK 2853.01-0070 "LOWER/RAISE
THE REAR RAMP" IS PERFORMED BY BOTH THE SKILL LEVEL 1 AND 2 INDI-
VIDUALS. THE "1" WITH THE "A" MEANS THEY BOTH RECEIVED THAT TRAINING
IN THE RESIDENT SCHOOL. NOTE ALSO THAT THE CODE "C,O" ATTRIBUTED TO
THE SKILL LEVEL 3 & 4 POSITIONS AND THE FIRING PLATOON LEADER (01/02)
INDICATES THEY ARE REQUIRED TO SUPERVISE THE TASK TO SOME DEGREE AND
HAVE NOT RECEIVED ANY FORMAL TRAINING. TASK 2853.01-0440 INDICATES
THE 01/02 PLATOON LEADER IS THE ONLY INDIVIDUAL IN THE ORGANIZATION
REQUIRED TO PERFORM THE TASK. HE HAS RECEIVED FORMAL INSTRUCTION ON
HOW TO PERFORM THE TASK. THE CHECKED BLOCK UNDER MQS II MEANS THE
TASK IS REQUIRED TO BE MASTERED BY THE OFFICER BETWEEN HIS FIRST *and*
THREE YEARS OF COMMISSIONED SERVICE. THE REFERENCES SHOWN IN THE
LAST COLUMN ARE THE ARTEP & SOLDIER'S MANUALS OR PRIMARY TRAINING
REFERENCES THAT RELATE TO THE TASKS.

PRODUCTS

OFFICER'S MANUALS

SOLDIER'S MANUALS

COMMANDERS MANUAL / TRAINERS GUIDE

JOB BOOKS (JB)

SKILL QUALIFICATION TEST (SQT)

PROGRAMS
PERIODS OF INSTRUCTION (POI)

EXPORTABLE TRAINING MATERIALS

4-21

AS YOU HAVE SEEN, THE FEA PROCESS IS COMPLICATED AND DETAILED. THE
ANALYSIS BASE ONCE DEVELOPED WILL, HOWEVER, WITH ONGOING MODIFICATIONS,
PROVIDE A COMMON POINT OF DEPARTURE FOR ALL OF THE DELIVERABLES CUR-
RENTLY BEING PRODUCED IN TRADOC (E.G., SOLDIER'S MANUALS, TRAINER'S
GUIDE, JOB BOOKS, ARTEPS, OFFICER'S MANUALS AND RESIDENT AND NON-
RESIDENT INSTRUCTION). WITH WELL-TRAINED ANALYSTS AND A GOOD PLAN,
COUPLED WITH WELL DESIGNED AUDIT TRAIL PROCEDURES, THIS PROCESS IS
MANAGEABLE AND EXTREMELY BENEFICIAL.

<u>SHOW SLIDE # 14</u>

<u>REANALYSIS / CROSSWALK</u>
<u>PROJECTED MILESTONES</u>
FA MOS/SSI ANALYSIS

	<u>BEGIN</u>	<u>COMPLETE</u>
INSTITUTIONAL ANALYSIS	APR 80	JUL 80
FIELD VALIDATION INTERVIEW/QUESTIONNAIRES	AUG 80	OCT 80
TASK/SITE SELECTION BOARDS	OCT 80	FEB 81

7-23

BECAUSE OF THE NEED FOR A COMMON ANALYSIS BASE FROM WHICH ALL TRAINING
CAN BE DEVELOPED AND THE DESIRE FOR A CROSSWALK FOR PROBABLY INCLUSION
IN THE TRAINER'S GUIDE, A REANALYSIS EFFORT WAS BEGUN BY USAFAS IN
APPIL 1980. THE "WHAT SHOULD BE" ASPECTS OF THE FEA WERE COMPLETED IN
JULY OF 1980. THE "WHAT IS" ASPECT OR VALIDATION PHASE BEGAN IN
AUGUST 1980 WITH FIELD VISITS TO 5TH AND 7TH CORPS ELEMENTS IN GERMANY.
TASK/SITE SELECTION BOARDS ARE ANTICIPATED TO BEGIN IN OCTOBER 1980
AND COMPLETED FOR ALL MOS AND OFFICER SSIs BY FEBRUARY OF 1981. THIS
CONCLUDES BY BRIEFING....ARE THERE ANY QUESTIONS?

INCL 8

TITLE:

UNITED STATES ARMY ORGANIZATIONAL

EFFECTIVENESS CENTER AND SCHOOL'S EXPERIENCE

Objective

To present the United States Army Organizational

Effectiveness Center and School's experience using

a Competency System to develop training for the

Organizational Effectiveness Staff Officer Course.

8-1

Incl 8

Rationale for Using a Competency System

- Traditional JTA appears more suitable for "hard" skills than "soft" skills areas.

- Performance of soft skills has an added dimension in which a JTA cannot Measure.

- Our interface with ARI and the Navy produced a viable alternative to traditional JTA.

- CECS faculty wanted to know the characteristics of a superior Management Consultant.

8-2

Competency System

- Analyze

- Design/Development

- Implement

- Evaluate

Pre-Work Process

- OECS contacted ARI who contracted McBer & Company to conduct a Job Competence Assessement (JCA) on Army OESOs (ICs).

- OECS and ARI sent representatives to the Navy Personnel Research Development Center (NPRDC) to obtain their Lessons Learned.

- OECS personnel closely examined the Navy's use of the JCA process in developing training in leadership.

Lessons Learned From Navy/NPRDC

- One Project Manager

- Roles among ARI, OECS, and contractor must be understood.

- Host IPR's

- Be specific with desired outcomes.

- Conduct a traditional Job Task Analysis.

- Criterion groups should be superior and average.

- Performance Evaluation Measures must be developed.

COMPETENCY SYSTEM

**9 CLUSTERS
34 COMPETENCIES**

ANALYZE	DESIGN/DEVELOPMENT	IMPLEMENT	EVALUATE
CLUSTERS	I. RECOGNITION Describe competency of "Concern for Measurable Outcomes."	INTERACTIVE EFFECTS: ANTECEDENT "Concern for Clarity"	Matches the methodology used in the Skill Development.
"Results Orientation"			
COMPETENCIES			
"Concern for Measurable Outcomes"	II. UNDERSTANDING: Give examples of CFMO behaviors; e.g., "Describes Specific Milestones."	SUBSEQUENT "Cause and Effect Thinking"	
PERFORMANCE INDICATORS			
"Describes Specific Milestones"	III. SELF-ASSESSMENT: Recount personal use of Milestones & other CFMO behaviors.		
"Etc."	IV. SKILL DEVELOPMENT Simulate Contracting session.		
	V. Job Application:		

A HYPOTHETICAL DYNAMIC PROCESS MODEL
OF COMPETENCY INTERACTION

8-8
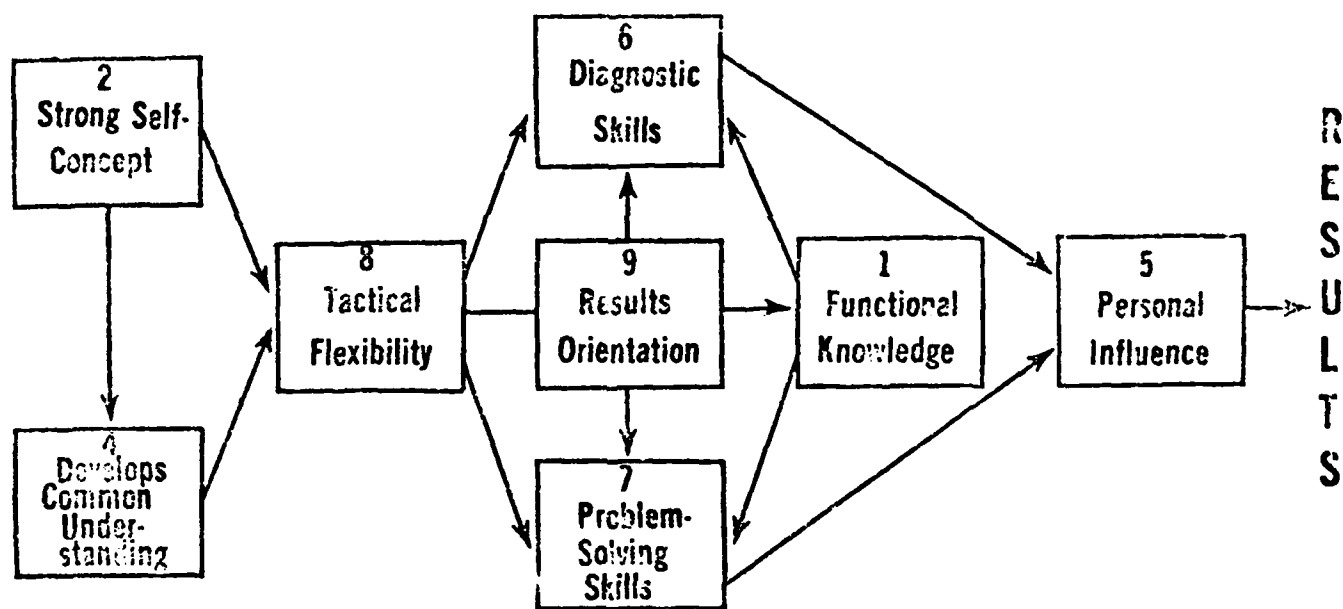
INCL 9

TITLE:

ARMY OCCUPATIONAL SURVEY PROGRAM (AOSP)

ARMY OCCUPATIONAL SURVEY PROGRAM (AOSP)

COMPREHENSIVE OCCUPATIONAL DATA ANALYSIS PROGRAMS (CODAP)

AOSP

- **RESPONSIBILITY OF THE SOLDIER SUPPORT CENTER - NCR**

- **POLICIES COVERED IN AR 611-3**

- **ADMINISTRATION COVERED IN DA PAMPHLET 611-3**

- **USES THE AIR FORCE DEVELOPED CODAP SYSTEM**

9-2

ORGANIZATION

```
                    ┌──────────────────────────┐
                    │ SOLDIER SUPPORT CENTER - │  COL BETTINGER
                    │          NCR             │
                    └──────────────────────────┘
              ┌────────────────┴─────────────────┐
    ┌──────────────────┐                 ┌──────────────────┐
    │    MILITARY      │                 │    PERSONNEL     │
    │  OCCUPATIONAL    │  COL STRICKLER  │    RESOURCE      │  COL GANEY
    │  DEVELOPMENT     │                 │    ANALYSIS      │
    │  DIRECTORATE     │                 │   DIRECTORATE    │
    └──────────────────┘                 └──────────────────┘
       ┌──────┴───────┐                     ┌──────┴───────┐
┌────────────┐ ┌────────────┐        ┌────────────┐ ┌────────────┐
│    MOS     │ │  ATTITUDE  │        │OCCUPATIONAL│ │    DATA    │
│ STRUCTURE  │ │ AND OPINION│        │   SURVEY   │ │  ANALYSIS  │
│  DIVISION  │ │SURVEY DIVISION│     │  DIVISION  │ │  DIVISION  │
└────────────┘ └────────────┘        └────────────┘ └────────────┘
```

AR 611-101/112/201

7-3
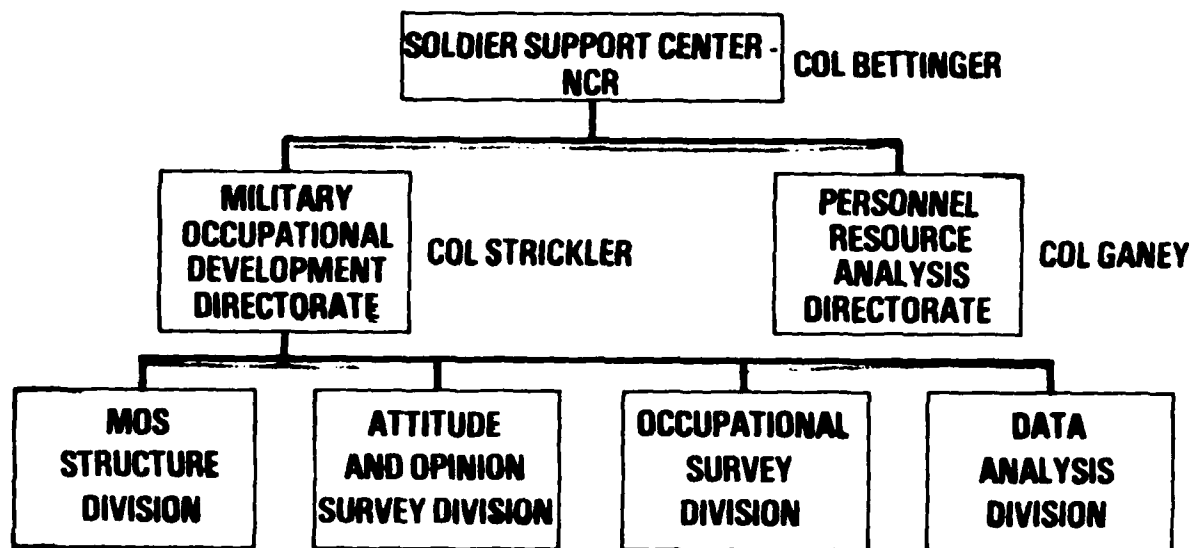
AOSP YEARLY OBJECTIVES

- APPROXIMATELY 50 ENLISTED INCUMBENT
  SURVEYS AND 30 TRAINING EMPHASIS
  SURVEYS

- APPROXIMATELY 40 COMMISSIONED
  OFFICER/WARRANT OFFICER INCUMBENT
  SURVEYS WITH APPROPRIATE TRAINING
  FACTORS

9-4

OCCUPATIONAL SURVEY DIVISION

- **DETERMINES YEARLY AOSP SURVEY PROGRAM**

- **DEVELOPS SURVEY QUESTIONNAIRES IN CONJUNCTION WITH SCHOOLS**

- **DISTRIBUTES QUESTIONNAIRES AND ANSWER BOOKLETS**

- **MONITORS RETURNS**

- **HAND SCREENS ANSWER BOOKLETS**

- **MAINTAINS THE OCCUPATIONAL DATA BANKS**

- **PROVIDES USERS WITH ENLISTED CODAP REPORTS**

7-5

DATA ANALYSIS DIVISION

- **PARTICIPATES IN QUESTIONNAIRE DEVELOPMENT**

- **PROVIDES TECHNICAL ADVICE AND CONSULTING SERVICES CONCERNING CODAP**

- **PROVIDES USERS WITH CODAP REPORTS ON OFFICER SPECIALTIES AND WARRANT MOS**

- **DEVELOPS OCCUPATIONAL SURVEY ANALYSIS REPORTS**

COMPREHENSIVE
OCCUPATIONAL
DATA
ANALYSIS
PROGRAMS

9-7

CODAP

BASIC HISTORY:

- **RESEARCHED BY US AIR FORCE 1960-1967**
- **DOD APPROVED FOR ARMY 1972**
- **USED BY ALL US ARMED FORCES (ITRO)**

7-2

CODAP

METHOD:

- **LARGE SCALE SURVEYS OF JOB INCUMBENTS AND THEIR SUPERVISORS**

- **COMPUTER PROCESSING OF SURVEY DATA**

- **ANALYSIS BY TRAINED SPECIALISTS OF THE PROCESSED RESULTS**

FROM JOB INCUMBENTS

CODAP PROVIDES:

- PROBABILITY OF TASK PERFORMANCE (PERCENT PERFORMING)

- AVERAGE PERCENT TIME SPENT BY DUTY AND TASK

- A PROFILE (e. g., AVERAGE PAYGRADE, DISTRIBUTION BY COMMAND AND LOCATION, EDUCATIONAL LEVEL)

- EQUIPMENT USED, MAINTAINED, ETC

- IMPORTANCE OF SKILLS, KNOWLEDGE, ABILITIES, RESPONSIBILITIES, AND PHYSICAL CHARACTERISTICS

- MEASURES OF JOB SATISFACTION, UNIT MORALE, AND CAREER INTENT

FROM SUPERVISORS/SME's

CODAP CAN PROVIDE:

- TRAINING EMPHASIS

- LEARNING DIFFICULTY

- CONSEQUENCES OF INADEQUATE PERFORMANCE

- TASK DELAY TOLERANCE

- OTHER FACTORS RELATED TO TRAINING DECISIONS

ARMY OCCUPATIONAL SURVEY PROGRAM (AOSP)

SCHEDULE CY 1981

PART I - Officer

PART II - Warrant Officer

PART III - Enlisted

I   COMMISSIONED OFFICER SURVEY SCHEDULE CY81

SPECIALTY	GRADES	DATE TO FIELD
11 - Infantry	04-06	Jul-Sep
12 - Armor	01-03	May-Jun
13 - Field Artillery	04-06	Jul-Sep
14 - Air Defense Artillery	01-03	Apr-Jun
15 - Aviation	01-03	Apr-Jun
21 - Engineer	01-03	Apr-Jun
27 - Communications-Electronics Engineering	01-06	Mar
31 - Law Enforcement	04-06	Jul-Sep
35 - Military Intelligence	01-03	Apr
36 - Counterintelligence, Signal Security, and Human Intelligence	01-03	Apr
41 - Personnel Programs Management	04-06	Oct-Dec
42 - Administrative and Personnel Systems Management	04-06	Oct-Dec
72 - Communications-Electronics Materiel	01-06	Feb-Mar
73 - Missile Materiel Management	04-06	Jul-Sep
81 - Petroleum Management	01-03	Apr-May
82 - Subsistence Management	01-03	Apr-May
82 - Subsistence Management	04-06	Oct-Dec
92 - Materiel/Services Management	04-06	Oct-Dec

TOTAL - 17 Specialties (18 Surveys)

II WARRANT OFFICER SURVEY SCHEDULE CY81

	MOS	DATE TO FIELD
201A - Meteorology Technician		Jul-Sep
211A - Target Acquisition Radar Technician		Jul-Sep
214GO - Missile System Technician, Lance (Organizational)		Jul-Sep
214GV - Missile System Technician, Lance (DS/GS)		Jul-Sep
221B - Missile Assembly Technician, Nike		Apr-Jun
222BO - Missile Fire Control Technician, Nike (Organizational)		Apr-Jun
222BV - Missile Fire Control Technician, Nike (DS/GS)		Apr-Jun
223BO - Missile System Technician, Hawk (Organizational)		Apr-Jun
223BV - Missile System Technician, Hawk (DS/GS)		Apr-Jun
224BO - Short-Range Air Defense Systems Technician (Organizational)		Apr-Jun
224BV - Short-Range Air Defense Systems Technician (DS/GS)		Apr-Jun
310A - Utilities Operation and Maintenance Technician		Jan
401A - Airdrop Equipment Repair Technician		Oct-Dec
621A - Engineer Equipment Repair Technician		Feb
711A - Personnel/Administrative Technician		Oct-Dec
761A - General Supply Technician		Oct-Dec
762A - Support Supply Technician		Oct-Dec
821A - Survey Technician		Mar
833A - Reproduction Technician		Jan
951A - Criminal Investigator		Jul-Sep

TOTAL - 16 MOS (20 Surveys)

III ENLISTED SURVEY SCHEDULE CY81

MOS	DATE TO FIELD
OOB – Diver	Nov–Dec
OOE – Recruiter	Jun–Jul
OOJ – Club Manager	Jul–Aug
OOU – Equal Opportunity NCO	Jul–Aug
03C – Physical Activities Specialist	Jul–Aug
11B – Infantryman	Mar
11H – Heavy Anti-armor Weapons Crewman	Mar
13F – Fire Support Specialist	Feb
16J – Defense Acquisition Radar Operator	Jul–Aug
16Z – Air Defense Artillery Senior Sergeant	Jul–Aug
21L – PERSHING Electronics Repairer	Sep–Oct
24H – Improved HAWK Fire Control Repairer	Nov–Dec
24J – Improved HAWK Pulse Radar Repairer	Nov–Dec
24M – VULCAN System Mechanic	Apr–May
24N – CHAPARRAL System Mechanic	Apr–May
26B – Weapons Support Radar Repairer	Jun–Jul
26D – Ground Control Approach Radar Repairer	Feb
26L – Tactical Microwave System Repairer	Jul–Aug
26T – Radio/Television Systems Specialist	Oct–Nov
26V – Strategic Microwave System Repairer	Oct–Nov
31N – Tactical Circuit Controller	Feb
31V – Tactical Communications System Operator/Mechanic	Feb
31S – Field General COMSEC Repairer	Oct–Nov
31Z – Communications-Electronics Operations Chief	Feb
32F – Fixed Ciphony Repairer	Oct–Nov
32H – Fixed Station Radio Repairer	Jul–Aug
34F – DSTE Repairer	Jul–Aug
35K – Avionic Mechanic	Feb
35L – Avionic Communications Equipment Repairer	Feb
36L – Electronic Switching Systems Repairer	Aug–Sep
42E – Optical Laboratory Specialist	Jul–Aug
46N – PERSHING Electrical-Mechanical Repairer	Sep–Oct
51C – Structures Specialist	Apr–May
51T – Technical Engineering Supervisor	Jun–Jul
52E – Prime Power Production Specialist	Aug–Sep
54E – Chemical Operations Specialist	Apr–May
62F – Lifting and Loading Equipment Operator	Oct–Nov
62J – General Construction Equipment Operator	Sep–Oct
71P – Flight Operations Coordinator	Aug–Sep
71Q – Journalist	Jun–Jul
73D – Accounting Specialist	Oct–Nov
81B – Technical Drafting Specialist	Oct–Nov
81E – Illustrator	Oct–Nov
83E – Photo and Layout Specialist	May–Jun
91Q – Pharmacy Specialist	Jul–Aug
91S – Environmental Health Specialist	Jul–Aug
91T – Animal Care Specialist	May–Jun
93H – Air Traffic Control (ATC) Tower Operator	Aug–Sep
93J – ATC Radar Controller	Aug–Sep
95B – Military Police	Mar

TOTAL – 51 MOS

7 - 15

CODAP

POINTS-OF-CONTACT

February 1981

2-15

CODAP POINTS-OF-CONTACT

WRITE: Commander
US Army Soldier Support Center
ATTN: ATZI-NCR-MD
Alexandria, VA 22332

TELEPHONE: AUTOVON 221-0056/9272

SCHOOL	PRIMARY	ALTERNATE
US Army Air Defense School	Ms. Toni Weir	Mr. Leslie Lord
US Army Armor School	Ms. Toni Weir	Mr. Alan Craig
US Army Aviation Center/School & Ft Rucker	Ms. Peg Mercer	Mr. Gregg Dudding
US Army Chaplain Center & School	Mr. Leslie Lord	Mrs. Susan German
US Army Chemical School	Ms. Peg Mercer	Mr. Dave O'Kane
US Army Engineer School	Mr. Alan Craig	Mr. Gregg Dudding
US Army Field Artillery School	Dr. Larry Goldman	Mr. Dave O'Kane
US Army Infantry School	Mr. Dave O'Kane	Mr. Leslie Lord
US Army Intelligence Center & School	Mr. Dave O'Kane	Ms. Toni Weir
US Army Intelligence School-Devens	Mr. Dave O'Kane	Dr. Larry Goldman
US Army Military Police School	Mr. Leslie Lord	Dr. Larry Goldman
US Army Missile & Munitions Center & School	Dr. Larry Goldman	Ms. Toni Weir
US Army Ordnance School	Mr. Gregg Dudding	Mr. Alan Craig
US Army Quartermaster School	Mr. Leslie Lord	Mr. Dave O'Kane
US Army Signal School & Ft Gordon	Mr. Gregg Dudding	Ms. Toni Weir
US Army Transportation School	Mr. Alan Craig	Ms. Peg Mercer

INTEGRATING CENTERS	PRIMARY	ALTERNATE
US Army Combined Arms Center	Mr. Dave O'Kane	Ms. Toni Weir
US Army Logistics Center	Dr. Larry Goldman	Mr. Leslie Lord
US Army Soldier Support Center*	Mr. Alan Craig	Dr. Larry Goldman

*Including: US Army Adjutant General School; US Army Finance School; US Army
Computer Science School; and US Army Personnel Management School

OTHERS	PRIMARY	ALTERNATE
Defense Information School	Mr. Alan Craig	Mrs. Susan German
Defense Language Institute	Ms. Toni Weir	Mrs. Susan German
Defense Race Relations Institute	Ms. Peg Mercer	Mr. Leslie Lord
US Army Command & General Staff College	Mr. Dave O'Kane	Mr. Alan Craig
US Army Element of Music Naval Amphibious Base	Mrs. Susan German	Mr. Gregg Dudding
US Army Institute for Military Assistance	Mr. Dave O'Kane	Mr. Alan Craig
US Army Sergeants Major Academy	Mr. Leslie Lord	Mrs. Susan German
US Army Organizational Effectiveness Training Center	Ms. Peg Mercer	Mr. Gregg Dudding
Academy of Health Sciences	Mrs. Susan German	Ms. Peg Mercer

INCL 10

TITLE:

DISCUSSION GROUP

DISCUSSION GROUP LEADERS

MODELS: Chief - Chap (LTC) Bridgeman
                    Mr. Brady
                    Mr. Foley

DATA: Chief - LTC Kasper
                 MAJ Mann
                 Mr. Priest

TRAINING: Chief - Mr. Van Zante
                       Chap (LTC) Craig
                       MAJ Rock

TOPICS:

FEA vs JTA and SAT <u>all</u>

<u>Model</u> availability/selection

<u>Training</u> needs for analyst (include SC 28, etc.)

<u>Data</u> management thereof (include CODAP/AOSP/TDIS, etc.)

DATA GROUP

Chief - LTC Joe Kasper   USAADS
Asst - MAJ Mann
Asst - Mr. Gary Priest

BERGMAN, Joseph

BURK, Gary

COLLINS, Gary

CRICK, Paul

DAVISON, Jaquelin

DIEDUARDO, Joseph

DILG, James

GROTTE, Mark

HAYS, Robert

KNIPPENBERG, Robert

LAKEMAN, Doris

LOWERY, Ray

MANN, Morris

NAKASHIMA, Miles

REDMAN, Jack

ROBERTS, Hugh

YOUNGBLOOD, Jesse

PRIVETT, Judy

TRAINING GROUP

Chief - Mr. Mark VanZante   USASSC
Asst - Chap (LTC) Craig
Asst - MAJ Rock

DAVIS, Larry	VASSOS, Aggie
FISHER, Edward	WHITE, Ray
KELLAR, Vera	WILLIAMS, Roy
LONDONER, Carroll	MITCHELL, Dennis
NOLAN, John	PRYOR, Jack
PARKER, Frank	KENDALL, Ray
PIERSON, John	BELANUS, Terry
POND, George	WAGNER, Robert
ROMPF, Everett	STRATTON, James
SCHUYLER, Margaret	BRITTAIN, Clay
THOMAS, Thomas	DAVIS, Andrew
VANDERLAAN, John	WORSTEIN, Darrell

MODELS GROUP

Chief - Chap (LTC) Bridgeman   CHAP SCH
Asst - Mr. John Brady
Asst - Mr. Bernie Foley

AEGETHER, Garth	MONTGOMERY, Major
AINSWORTH, Jack	O'KELLEY, George
BOLIN, Stan	ROBINSON, Joe
COOPER, Clarence	ROSE, Leroy
DALTON, William	ROWLEY, Cleve
DILG, James	RUBLE, William
EUBANKS, Robert	RYAN, Art
EVANS, John	SHARP, William
FELTON, James	SIMS, Ronald
FINCH, Curtis	STUART, Walter
FOLEY, Bernard	VANDEREN, Richard
FRIETAG, Melvin	VANDINE, Peter
FULLER, Ralph	WARD, Joseph
GOVER, Donald	WEIR, Toni
GREER, William	WERNER, Susan
HOBSON, George	KELLEY, G. H.
HOFFMAN, Marianne	BRITTAIN, Clay
KOERIN, Phil	

INCL 11

TITLE:

CONCEPTUAL MODEL FOR STORAGE, MANAGEMENT, AND

TRANSMISSION OF FEA DATA USING WORD PROCESSING EQUIPMENT

ATTG-DOR

SUBJECT: Conceptual Model for Storage, Management, and Transmission of FEA
Data Using Word Processing Equipment

Mr. Silverberg presented a model for utilizing word processing equipment to
store, manage and transmit analysis data. Data will be coded, entered and
stored on disk in TRADOC Form 550 or equivalent format. An image generator
program will display the entry format on the CRT screen for operator entry.
Hard copies may be obtained by calling out of disk the desired data uti-
lizing the entry code and printing it out in entry format. In the data
transmission mode, data is outputed from the word processor into an inter-
face buffer and then into a modum. The modum transmits the data on to an
AUTODIN/AUTOVON line (depending upon data transmission rate). Data is pro-
cessed in the reverse fashion on the receiving end. Cost per terminal for
the interface buffer and modum is estimated at approximately $3,000 over
and above the cost of the word processing equipment.

INCL 12

TITLE:

JTA VS FEA
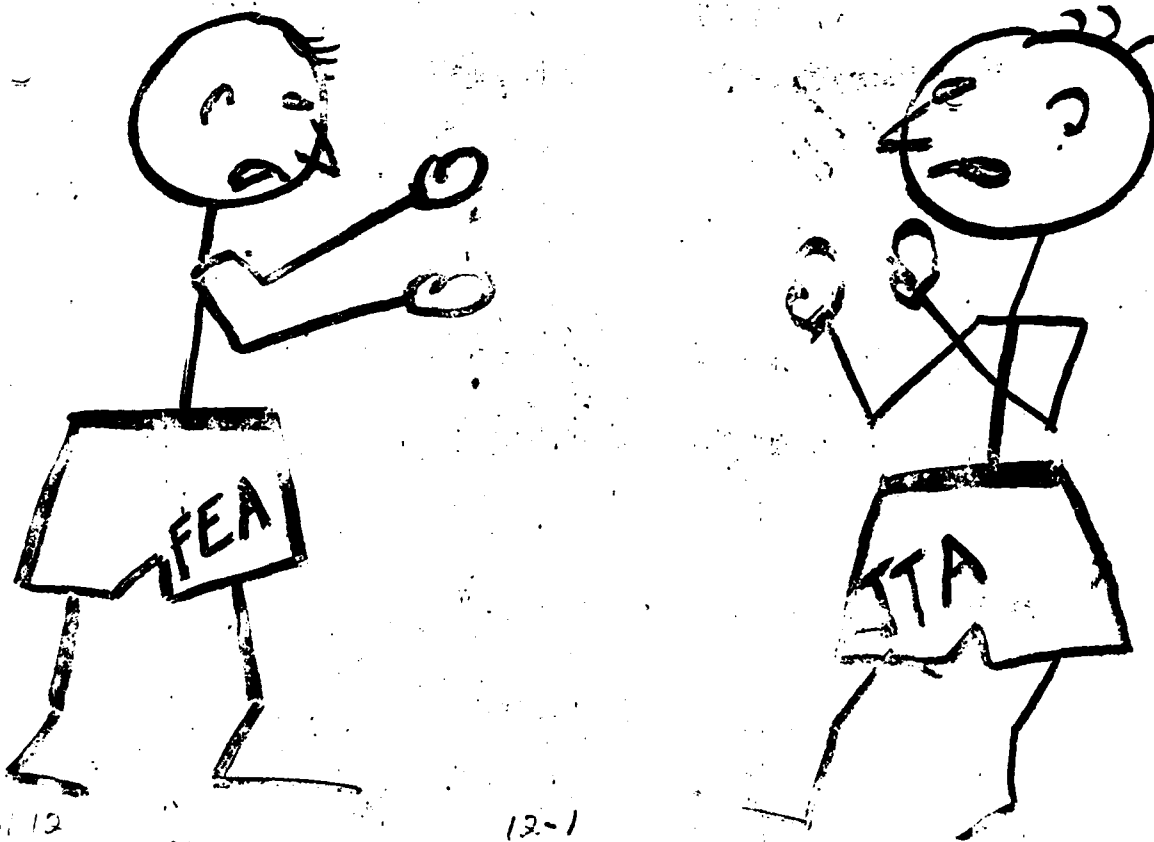
12-2

INCL 13

TITLE: SAT

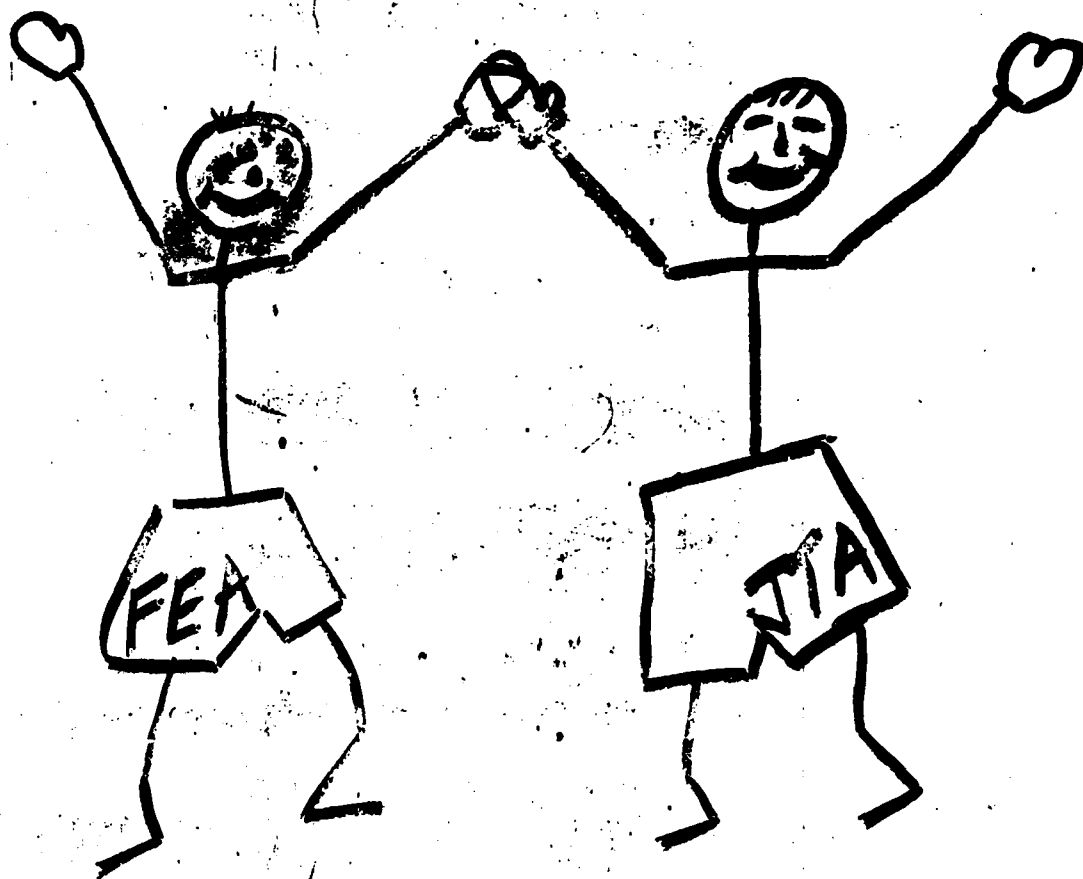# SAT

- FLEXIBLE
- LESSONS
  LEARNED
- LITERATURE

IV. SYSTEMS APPROACH TO TRAINING

A. Generic SAT Regulations

B. "How To" Pamphlets

C. Training Programs

INCL 14

TITLE:

TRAINING NEEDS FOR THE ANALYST

TRAINING NEEDS FOR THE ANALYST

(?)
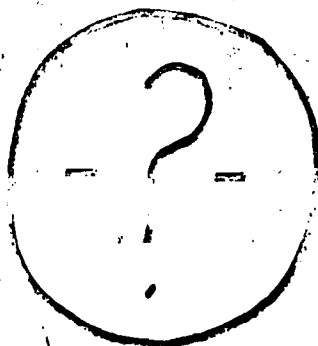
TRAINING ANALYST
NEEDS

I   Baseline Training for the Analyst

II   Alternative Modes of Training

III   Specialty Codes / Identifiers

IV   Systems Approach to Training (SAT) Package

V   Front-End Analysis (FEA) vs Job & Task

Analysis (J&TA)

BASELINE TRAINING FOR THE ANALYST

A. Minimum Competencies

B. Train For All Levels Within.
   The Analytical Structure

C. Identify Principles Common.
   To All Models

14-3

I. ALTERNATIVE MODES OF TRAINING

A. Staff and Faculty
   1. For the School / Training Center
   2. For the S & F Trainer

B. Use of Contractor Training

C. OJT

D. Short Term Civilian Training

E. Centralized Training

F. TRADOC Seminars

III. SPECIALTY CODES/IDENTIFIERS

A. SC 28

B. SQI For Enlisted/NCO

C. WO Identifier

YES

NO

INCL 15

TITLE:

DATA MANAGEMENT

DATA MANAGEMENT

IMPACTING FACTORS

VOLUME / SHEER BULK OF PAPER

PERSONNEL TURBULENCE

LACK OF INSTITUTIONAL MEMORY

PROGRAM COMPLEXITY AND DETAIL

RESOURCE CONSTRAINTS

EXPENSIVE BUT ESSENTIAL
REQUIREMENT

DATA MANAGEMENT

PERCEPTIONS

- IMPROVEMENTS IN STORAGE/ACCESS OF TASK DOCUMENTATION AND AUDIT TRAIL INFORMATION ARE NEEDED.

- ORGANIC CAPABILITY TO MANIPULATE SPECIALTY/MOS-RELATED TASK DATA IS NECESSARY.

- COMPUTER APPLICATIONS ("DATAMATION") TO TRAINING DEVELOPMENT POSSESS THE POTENTIAL TO BE A TREMENDOUS ASSIST TO THE TD COMMUNITY — DEPENDENT ON CERTAIN ACTIONS.

DATA MANAGEMENT

RECOMMENDATIONS

CONDUCT TD ADP SEMINAR

ESTABLISH POCS FOR TNG
DEVELOPMENT ADP DEVELOPMENT
PLANNING

DETERMINE SHORT RANGE/
INTERIM ADP GOALS

DETERMINE LONG TERM GOALS

INCL 16

TITLE:

TRAINING WEST

INC/ 16

WHY YOU OWE IT T(

TRAINING WEST: TRAINING MAGAZINE'S FIRST ANNUAL SPRING CONFERENCE AND EXHIBITION
APRIL 13-16, DISNEYLAND HOTEL, ANAHEIM

Entering their fifth year, TRAINING Magazine's Annual Conferences have become generally recognized as the most powerful and comprehensive events in the Human Resources Development field.

Now, we've got some exciting news! You have a choice of locations when you make plans to attend TRAINING's annual conference and exhibition TRAINING WEST will take place April 13-16, 1981, at the Disneyland Hotel in Anaheim, California. Although it's modeled after our successful conference held annually in early December in New York City, TRAINING WEST will not be a carbon copy. Indeed, research by TRAINING's editors and conference planners indicates that the TRAINING WEST seminar workshop program will be excitingly different. By all means, the best sessions of TRAINING's previous conferences will be repeated, but dozens of new workshops are being designed specifically for this event, some of them never before available on the West Coast.

TRAINING's annual conference moves to the West Coast because you asked for it. In a recent survey of West and Midwest readers of TRAINING, over 60% of the respondents indicated they would attend a West Coast event sponsored by TRAINING. In response to that request, TRAINING's editors have planned TRAINING WEST to coincide with a school vacation period (the week before Easter), offering you the opportunity to bring your family and extend your stay in Anaheim. The site, the fabulous Disneyland Hotel, combines the best in convention facilities with direct monorail access to one of the world's largest and best playgrounds Disneyland

Here's why you owe it to yourself and to your organization to attend:

1 YOU PAY ONLY FOR SESSIONS YOU ACTU-ALLY ATTEND. You do not have to sign up for the full four days, and may register for as few as one or as many as eight of the more than 90 seminar workshops offered

2 TRAINING WEST OFFERS AN IMPROVED LEARN-ING ENVIRONMENT. Not only are the meeting facilities at the Disneyland Hotel first rate, but several features of the seminar workshop program combine to provide a good learning climate. For example, attendees preregister, and speakers are told two weeks before the conference whom their sessions' attendees will be. This helps speakers tailor their presentations to your needs.

3 YOU CAN CHOOSE FROM SCORES OF WORKSHOPS ON THE EVER-IMPORTANT BASICS: How to design instruction for adults; what we know about the way adults learn; how to plan and run better meetings; training first-line supervisors to be better on-the-job counselors; how to measure and evaluate training effectiveness. The sessions on the whats, whys,

wheres and whens of classroom training will range from a workshop on how to improve your platform skills to a session on instructor training. Leading specialists from throughout the nation will conduct sessions on training with media, many of them structured as hands-on workshops. Examples: making video creative without spending money; how to produce effective audiovisual programs; the new videodisc and how it can help trainers; how to get the most out of using printed materials; and writing for the eye and ear

4 MANY SESSIONS DEAL WITH PERFORMANCE AND PRODUCTIVITY IM-PROVEMENT. You'll be able to learn the whys and hows of managing stress for organizational productivity. Hear members of the Woodlands Group, a "think tank" of trainers, put the productivity crisis into perspective for HRD. Plus, there'll be useful sessions on manage-ment and supervisory development; ses-sions on various aspects of organization development; topics in selection, place-ment and career development; sales management and training; and topics specifically related to helping training and development executives improve the ways they currently structure, manage and market training and development in their organization . . . and much, much more!

5 YOU CAN MEET AND EX-CHANGE IDEAS WITH YOUR PEERS. The exhibition, the special evening functions, and the more than 90 sessions help attendees meet and rap with the 75 faculty members and more than 200 exhibitor personnel and, of course, other attendees from a wide variety of organizational settings.

6 THE FREE EXHIBITION OFFERS A GOLDMINE OF USEFUL AIDS AND INFOR-MATION. You'll see the technological innovations that are dramatically chang-

16-2

ASONS
YOURSELF TO ATTEND

ing training — the latest advances in hardware, software and services that can make your job easier and more productive. You'll meet many of the industry's major suppliers and key management personnel. They'll be eager to show you how their products, services and equipment can help you control costs, operate more efficiently and grow in today's competitive environment.

7 FREE FILM FESTIVAL
You will have an opportunity to view the latest off-the-shelf training films and videotapes at the free Film Festival. The best from previous Training Film Festivals will augment the premiere showings for many new releases.

8 EVENING EVENTS PROMISE FUN AND LEARNING.
Larry Wilson will address attendees on the topic of wellness late Monday afternoon. Tuesday evening is the gala wine and cheese reception for all attendees, speakers and exhibitors. And on Wednesday evening Ronald Zemke will discuss why training departments and HRD functions of some organizations grow and prosper while others flounder and fail.

9 FREE SPECIAL EVENT TICKETS FOR MULTIPLE SESSION REGISTRATION. If you register for four or more seminar/workshops, you will receive free tickets to the Monday, Tuesday, and Wednesday special events plus tickets to Disneyland for Thursday evening, April 16.

10 YOU'LL GET A FREE SUBSCRIPTION (OR RENEWAL) TO TRAINING MAGAZINE. Everyone who attends at least one session receives a one-year subscription (worth $24) to TRAINING, The Magazine of Human Resources Development.

CALENDAR OF EVENTS

SEMINAR/WORKSHOPS
Monday, Tuesday, Wednesday and Thursday, April 13-16.
Morning sessions: 9:00-11:30 a.m. Afternoon sessions: 1:00-3:30 p.m.
(Except as otherwise noted in the session descriptions.)

SPECIAL EVENING EVENTS

Monday, April 13	6:00-7:00 p.m.	Larry Wilson
Tuesday, April 14	6:00-7:30 p.m.	Wine & Cheese Reception
Wednesday, April 15	6:00-7:00 p.m.	Ronald Zemke
Thursday, April 16	6:00 p.m.	Disneyland Night

FILM FESTIVAL
Tuesday, Wednesday and Thursday evenings, April 14, 15 and 16

EXHIBITION HALL

Tuesday, April 14	11:30 a.m.-6:00 p.m.
Wednesday, April 15	11:30 a.m.-6:00 p.m.
Thursday, April 16	11:30 a.m.-6:00 p.m.

TABLE OF CONTENTS

IE-3

MAIL FORM ON PAGE 27 WITHOUT DELAY!

TUESDAY APRIL 14 1-3:30 P.M.

HOW TO AVOID BEING 'TRADED OFF' [401]

Faculty: David Hon, national training manager, American Heart Association

An individual positions himself or herself in the career market in much the same way that a company positions products in the market. In doing so, the individual must deal with "trade-offs" — a balance of factors, not all of which are present at one time. For example, career development trade-offs might include performance in a "coming" area of expertise, identification of evolving markets, attainment of relevant education and self-assessment of how fast a track one wants. In this session based on his book *Trade-Offs*, Hon will assess how these trade-offs develop, and the measures each person can take to control the effects of the larger organizational trade-offs which seem to govern his or her destiny.

SAVE $. REGISTER NOW!

DESIGNING AND IMPLEMENTING UPWARD MOBILITY PROGRAMS [402]

Faculty: Thomas E. Mirabal, director, consulting/productivity programs, U.S. Office of Personnel Management, Dallas; Susan Stewart, training manager, Coca-Cola, Foods Division

This session will also be offered Tuesday morning. For a complete description, see Session 302.

THE INNER GAME TENNIS WORKSHOP: TRAINING AS AN INNER GAME [403] [303]

Faculty: Peter Block, senior vice president, Block Petrella Weisbord; W. Timothy Gallwey, founder of Inner Games and author of *Inner Game of Golf, Skiing, Tennis*

Special all-day session. For a complete description, see Session 303.

USING GAMES AND SIMULATIONS TO DEVELOP MANAGERIAL SKILLS [404]

Faculty: Dr. Scott B. Parry, president, Training House

During this session attendees will design a simulation and play two management games. Highly participative, this session illustrates Dr. Parry's fundamental thesis: that people learn best not by being told, but by experiencing the consequences of their own actions. Attendees will leave with an ability to select and/or develop management games and simulations and the ability to fill the role of a catalytic, process-oriented instructor in administering them.

HUMAN FACTORS IN PRODUCTIVITY: WORKING FOR A LIVING [405]

Faculty: Rob Wall, president, Productivity Products, Inc.

Working for a living can be a creative, rewarding and enjoyable experience for both the employer and the employee. This session will show trainers how measurement of work and workers and employee satisfaction can be integrated. Questions to be answered will include:
- What can we learn from other countries, such as Japan?
- How can supervisors and managers measure white and "open" collar performance?
- How can training be modularized and learning optimized? Plan to participate in structured exercises. Handouts will be provided.

MAKING THE MOST OF PRINTED MATERIALS [406]

Faculty: Stephanie Jackson, vice president, and J. Robert Carleton, executive vice president, Operants, Inc.

Print is both the most common and the most versatile training medium in use today. Too often, however, trainers and instructional writers look on it as a limited, somewhat "old fashioned" medium. In fact, some of the most innovative training systems available today use only the worker, the workplace and printed materials. To achieve a high level of impact with written material, however, requires more than just getting the information down on paper correctly. Research and practical experience have produced a number of rules and guidelines for producing effective written materials. This workshop won't turn you

16-4

TUESDAY APRIL 14 1-3:30 P.M.

into a great writer in three hours. What it will do, however, is teach participants to:

• Decide when and how to use printed materials to support performance.

• Select appropriately from among the many types of print materials available.

• Review printed materials, whether your own or others, for such characteristics as audience appeal, instructional appropriateness, format, use of graphics, etc.

The workshop will include presentation, examples and participant exercises. Participants will receive a job aid handout containing guidelines for making decisions about the choice of printed materials and for reviewing (or writing) printed materials.

This session will also be offered Wednesday morning. See Session 506.

This session will run from 1-4:00 p.m.

JOB AIDS ANALYSIS, PART 1: DECIDING IF THEY ARE APPROPRIATE | 407

Faculty: Claude Lineberry, president, Performance Design Corp., and co-author of *Job Aids*

Key to the cost effectiveness of training is the use of job aids to guide on-the-job performance — in addition to instruction on job-related skills and knowledges. This session will focus on analysis of job performance to determine the appropriateness of job aids as part of the training solution and design of the job aids to be utilized.

An application session, "Job Aids Analysis, Part II: Developing and Evaluating," will be offered Wednesday morning. See Session 510. A separate registration fee is required for each part of this program.

DESIGNING INTERACTIVE VIDEO PROGRAMS | 408

Faculty: Steve Floyd, writer/producer, Texas Instruments

Participants in this session will learn how to use instructional design principles to plan and develop interactive video programs. A case study example will be used to demonstrate the techniques of computer/video-based interactive formats. Participants should be familiar with basic media production and have an understanding of instructional design theory.

SELECTING AND USING THE *RIGHT* TASK ANALYSIS/NEEDS ANALYSIS TECHNIQUE | 409

Faculty: Ron Zemke, research editor, TRAINING Magazine, and president, Performance Research Associates

Most trainers only learn one or two ways of doing task and/or needs analysis. In this session, ten task/needs analysis techniques will be discussed. Criteria for successful needs and task analysis studies will also be reviewed. Recommended for trainers with a minimum of two years experience. Registrants are urged to read *Analyzing Performance Problems* by Mager and Pipe (Fearon, 1970) prior to the session.

A SIMPLIFIED APPROACH TO INSTRUCTOR TRAINING | 410

Faculty: Martin Broadwell, corporate partner, Resources for Education & Management, Inc.

The challenge is to take qualified content people and make satisfactory instructors out of them. The approach is to find those things which will give the new instructors enough skill and confidence that they can do a competent job, until they get the experience to actually know the best techniques. When this is combined with a design that centers the instruction around the learners instead of the teachers, we have a means of getting the job done just as though we had all professional trainers. This session will give instructor trainers a method to use in developing such a group of trainers.

HOW TO BUILD AND MAINTAIN YOUR OWN FULL TIME/PART TIME CONSULTING PRACTICE | 411 311

Faculty: Howard L. Shenson, author of numerous books on consulting and publisher of *The Professional Consultant*, a newsletter on the consulting profession

Special all-day session. For a complete description, see Session 311.

STRATEGICALLY POSITIONING HRD IN YOUR ORGANIZATION | 412

Faculty: Olaf Isachsen, president, Institute for Management Development, a consulting group and clearing house for training and development programs

Human resource development people often feel that they lack real organizational impact and that they are overlooked as an important organizational resource. But HRD *can* become an effective organizational tool if appropriately positioned with senior management. This session will focus on moving HRD from the background role it often plays into one of vital impact on overall corporate performance. Session attendees will explore various methods of achieving a results-oriented positioning of HRD.

INTEGRATING STRATEGIC AND MANPOWER PLANNING | 413

Faculty: Geary Rummler, vice president and managing director, Kepner-Tregoe, Inc.,

Training and development *should* be a key element in an organization's strategic planning, but it seldom has been. Rummler will explore the reasons for that situation, the steps human resources development people can take to change it and the changes HRD people will have to make in their own behavior in order to succeed.

POSITIVE DISCIPLINE | 414

Faculty: Richard C. Grote, president, Performance Systems Corporation, and author of *Positive Discipline*

Organizations have many ways of dealing with employees who miss too many days, do poor quality work, break organizational rules or create other kinds of trouble. But the basic steps remain the same. With traditional approaches, employees are expected to become better by being treated progressively worse. Positive Discipline is the alternative approach developed by Grote that maintains discipline without punishment. Positive Discipline has received national publicity because of its effectiveness in reducing absenteeism, terminations and grievances and increasing supervisory self-confidence. Grote will explain the concept, demonstrate the procedures and share the experiences of the growing number of organizations who are adopting this tough-minded, humanistic approach.

16-5

At a glance, the entire se|

	SELECTION, PLACEMENT AND CAREER DEVELOPMENT	ORGANIZATION DEVELOPMENT	MANAGEMENT AND SUPERVISORY DEVELOPMENT	PRODUCTIVITY AND PERFORMANCE IMPROVEMENT	TECHNICAL TRAINING
MONDAY, APRIL 13 9-11:30 A.M.	101: Trends in Career Management		104: Getting Your Act Together: Goal Setting For Fun, Health and Profit	102: Using Behaviorally Anchored Rating Scales	
MONDAY, APRIL 13 1-3:30 P.M.	201: Interviewing Skills Workshop	202: Managing Your Manager — The Effective Subject	203: Teaching Supervisors to Constructively Use Power and Authority	204: Combating the Human Energy Crisis	205: How to Teach for Technical Leadership
TUESDAY, APRIL 14 9-11:30 A.M.	301: Interviewing Skills Workshop 302: Designing and Implementing Upward Mobility Programs	303/403: The Inner Game Tennis Workshop: Training as an Inner Game	304: Getting Your Act Together: Goal Setting For Fun, Health and Profit 305: Training Supervisors to be Better Counselors on the Job	308: How to Effectively Use Formative and Summative Feedback 317: Building A Performance Engineering Department	310: Organizational Development: A Technical Trainer's Tool
TUESDAY, APRIL 14 1-3:30 P.M.	401: How to Avoid Being Traded Off 402: Designing and Implementing Upward Mobility Programs 413: Integrating Strategic and Manpower Planning	303/403: The Inner Game Tennis Workshop: Training as an Inner Game	404: Using Games and Simulations to Develop Managerial Skills	405: Human Factors in Productivity: Working for a Living 414: Positive Discipline	407: Job Aids Analysis, Part I: Deciding if They Are Appropriate
WEDNESDAY APRIL 15 9-11:30 A.M.		501: Helping Others Learn From Conflict 502: Staff Consulting Skills Workshop	503: Strategies for Implementing and Maintaining a Matrix Organizational Structure 504: Why Management Development Programs Fail and How to Prevent It	506: The Productivity Crisis: New Perspectives	510: Job Aids Analysis Part II: Developing and Evaluating
WEDNESDAY, APRIL 15 1-3:30 P.M.	601: Integrating Performance Appraisal With the Total Employee Development System	602: Staff Consulting Skills Workshop	603: Designing and Developing a Management Development Program for Technical Managers	604: The Productivity Crisis: New Directions	606: Organizing, Staffing and Managing the Technical Training Function
THURSDAY, APRIL 16 9-11:30 A.M.	701: Human Resource Planning: From Concept to Reality	704: Getting Started in Organizational Development	703: How to Teach Managers to Get Work Done in Meetings	702: Productivity — How to Make It Happen in Your Organization 706: Managing Stress for Organizational Productivity	707: How to Select Media for Technical Skills Training
THURSDAY, APRIL 16 1-3:30 P.M.			801: Motivational Techniques Useful for Supervisors	802: Productivity — How to Make It Happen in Your Organization	806: Organizing, Staffing and Managing the Technical Training Function

NOTE: Some sessions last longer than 2½ hours. See individual session descriptions for exceptions.

nar/workshop schedule

:S MENT LES ING	TRAINING WITH MEDIA	DESIGNING TRAINING	CONDUCTING AND EVALUATING TRAINING	STRUCTURING, MANAGING AND MARKETING THE HRD FUNCTION	GENERAL INTEREST	SPECIAL PROGRAMS AND EVENTS
	103: The Videodisc and How It Can Help Trainers	106: The ABCs of Instructional Design for Adults	108: Getting Results from Surveys and Questionnaires	106: How to Sell Your Training Programs to Higher Management 107: How to Develop an Appropriate and Effective Training Philosophy	109: Building Your Personal Resource Network	6:00-7:00 Larry Wilson
	207: The Videodisc Experience From Story-board to Student	206: Behavior Modeling. How to Develop It and Use It		208: Direct Marketing Your In-House Training Program	209: The Consulting Process	
	307: The Videodisc Experience. From Story-board to Student	306: How to Design Self-Instructional Training Materials 315: Learner-Controlled Instruction An Alterna-tive Approach	309: Getting Results from Surveys and Questionnaires 312: Using Simulations in Management Training	314: What Can a Small Training Department Really Accomplish?	311/411: How to Build and Maintain Your Own Full Time/Part Time Consulting Practice 313: Ways to Encourage the Creative Process 316: Training and the Law	11:30-6:00 Exhibit Hall Film Festival (Time to be announced)
	406: Making the Most of Printed Materials 408: Designing Interactive Video Programs	409: Selecting and Using the Right Task Analysis/Needs Analysis Technique	410: A Simplified Approach to Instructor Training	412: Strategically Positioning HRD in your Organization	311/411: How to Build and Maintain Your Own Full Time/Part Time Consulting	6:00-7:30 Wine and Cheese Reception
	506: Making the Most of Printed Materials 514: Visualizing and Scripting Training Programs	507: Applying Instruc-tional Design Principles to Any Type of Training 509: How to Design Self-Instructional Training Materials	508: Developing Your Own Platform Skills and Tech-niques 511: The Pros and Cons of Student Evaluation	512: Comprehensive Consultation A Model for the Personnel Function	513: Ways to Encourage the Creative Process	11:30-6:00 Exhibit Hall Film Festival (Time to be announced)
Your eds	606: Developing Effective Media Based Training Programs 609: Designing Micro-computer-Assisted Instruction	607: Applying Instruc-tional Design Principles to Any Type of Training	608: Developing Your Own Platform Skills and Tech-niques 610: Measuring and Evaluating Training	611: Designing and Equipping Cost-Effective Training Space	612: Mind Reading A Strategy for Dealing More Efficiently With Others 613: Creative Problem-Solving and Decision-Making Workshop	6:00-7:00 Ronald Zemke
ment a e for Force	706: How to Make Instructional Computing Work Basic Information for the Inexperienced 709: Basic Portable Video and Electronic Field Production	710: Customizing Off-The-Shelf Programs 711: Needs Analysis Process and Methods	712: How to Conduct a Training Program Audit	713: A Guide to Strategic Planning in HRD	714: Meet the Producers: A Dialogue Between Filmmakers and Film Users	11:30-6:00 Exhibit Hall Film Festival (Time to be announced)
Circles ent	804: Writing for the Ear and Eye 806: How to Make Instructional Computing Work Basic Information for the Inexperienced		807: An Overview of Evaluation A Beginner's Guide		808: Developing Brain Power	8:00 Night at Disneyland

16-7

A15

HOTEL RESERVATION FORM

**Special Hotel Rates for
TRAINING WEST Participants**

If you are coming to the show from out of town,
you can obtain special — and lower — room rates
at the Disneyland Hotel. To assure these special
rates, you must use this form (or a photocopy of
the form). Mail it directly to the Reservations
Manager.

To: Reservations Manager
      DISNEYLAND HOTEL
      1150 West Cerritos Avenue
      Anaheim, California 92802

(please type or print)

FOR: _____

Company _____

Address _____

City/State/Zip _____

Sharing room with _____

Please reserve accommodations as circled:

Accommodations

Single (One Person)	$70.00
Twin (Two Persons)	$84.00
Double (Two Persons)	$84.00
Triple/Quad	$84.00
Suites	On Request
Rollaways	$8.00

Plus 6% City Tax

Please enclose first night's rental as deposit. Refundable only
if hotel is notified 5 days before arrival date.

Arrival Date: _____

_____ Before 6 p.m. _____ After 6 p.m. (Gtd.)

Length of Stay_____Nights

Reservations not guaranteed if not received by March 18, 1981.

TRAINING WEST
REGISTRATION FORM
Please type or print clearly — use separate form for each registrant.

Sessions fill fast. Register today! CS

YOUR NAME	Mr ☐ Ms ☐
YOUR TITLE	
COMPANY	
STREET ADDRESS	
CITY	STATE ZIP
PHONE NUMBER	—

AREA CODE   NUMBER

Write the session numbers of your choice in the appropriate boxes — please print clearly.

Monday, April 13 9-11:30 a.m. (Session #'s 101-109 only)	Tuesday, April 14 9-11:30 a.m. (Session #'s 301-317 only)	Wednesday, April 15 9-11:30 a.m. (Session #'s 501-514 only)	Thursday, April 16 9-11:30 a.m. (Session #'s 701-714 only)
☐	☐	☐	☐

1-3:30 p.m. (Session #'s 201-209 only)	1-3:30 p.m. (Session #'s 401-414 only)	1-3:30 p.m. (Session #'s 601-614 only)	1-3:30 p.m. (Session #'s 801-808 only)
☐	☐	☐	☐

ENCLOSE TOTAL REMITTANCE WITH THIS FORM

SEMINAR/WORKSHOPS

Advance Registration
(postmarked with payment by March 27, 1981) .... 1st seminar @ $ __$60__

_____ additional seminars @ $50 .... $ _____

Regular Registration
(postmarked with payment after March 27, 1981) .... 1st seminar @ $ __$70__

_____ additional seminars @ $60 .... $ _____

_____ Special Events Package @ $30 .... $ _____

I would like _____ individual tickets to the M, T, W, special events (@ $10 each)..................... $ _____
(circle days)

_____ I have registered for four or more seminars.

Please send me _____ additional FREE Exhibit Hall registration forms.   **Total Amount Enclosed $ _____**

IMPORTANT: Please check all appropriate boxes. Your answers will help the faculty of the sessions you sign up for tailor their presentations to your background and that of the other attendees.

8. MY ROLE IN TRAINING & DEVELOPMENT IS:
1 ☐ Part-time responsibility   2 ☐ Career position in HRD
3 ☐ Stepping stone to higher non-HRD position   4 ☐ Other

9. I AM:
1 ☐ Beginning trainer   2 ☐ Intermediate trainer
3 ☐ Senior trainer   4 ☐ Other _____

10 MY MAJOR JOB FUNCTION IS:
1 ☐ Department Manager   2 ☐ Classroom instructor
3 ☐ Course designer   4 ☐ Other _____

11. TOTAL NUMBER OF EMPLOYEES IN MY ORGANIZATION:
1 ☐ Over 1,000   4 ☐ 100-249
2 ☐ 500-999   5 ☐ 50-99
3 ☐ 250-499   6 ☐ Under 50

12. MY DEPARTMENT:
1 ☐ Training/development   4 ☐ Industrial Relations   7 ☐ AV Production
2 ☐ Personnel   5 ☐ Marketing Sales   8 ☐ General Mgmt.
3 ☐ Safety   6 ☐ Adv., Sales Prom., PR   9 ☐ Other

13. MY ORGANIZATION'S PRIMARY BUSINESS ACTIVITY IS:
(check only one)   8 ☐ Software and/or AV Producer
1 ☐ Manufacturing   9 ☐ Federal Govt.
2 ☐ Hospitality   10 ☐ Local Govt.
3 ☐ Retail Distributor   11 ☐ State Govt.
4 ☐ Health Care Inst., Med. School   12 ☐ Military Govt
5 ☐ Insurance   13 ☐ Nonprofit
6 ☐ Financial, Banking   14 ☐ Consultant
7 ☐ Educational Inst   15 ☐ Other _____

If you are charging your registration to a credit card, please complete this section.

Check one: ☐ Visa ☐ Master Charge   **EXPIRATION DATE**

VISA   **master charge**

Signature _____

CARD NUMBER | | | | | | | | | | | | | | | | | | | |

For Office Use Only

A

Make checks payable to TRAINING WEST and mail to
TRAINING WEST Seminar Director, Conference Management Corporation,
500 Summer Street, Stamford, CT 06901

16-7

A27

REGISTER TODAY ... SAVE MONEY AND BE ELIGIBLE TO WIN A TRIP TO MEXICO

You'll save money by registering in advance. Your early registration also insures your admittance to the Seminar/Workshops of your choice. Attendance in many sessions is limited.

Use the Registration Form on opposite page to register for sessions and/or obtain forms for admission to the Exhibition Hall. The form may be photocopied for additional registrants.

Advance Registration
Prior to March 27, 1981
$60 for the first session and $50 for each additional session attended by the same person. In order to qualify for the above rates, registrations (with payment in full) must be postmarked by March 27, 1981.

Early Registration Suggested
Since the size of many sessions is limited, we advise early registration to assure a place in the programs of your choice. Registrations will be accepted in the order they are received.

Regular Registration
After March 27, 1981
$70 for the first session. Each additional session attended by the same individual: $60.

Win a Free Trip to Mexico City
If your seminar registration is received before March 27, you will be eligible for the Grand Prize drawing of an expense-paid trip to Mexico City — another good reason for registering early. A special Prize ticket will be mailed to you in advance of your arrival at the Disneyland Hotel. The drawing will be held at the show (time and place to be announced). (At-the-door or late mail registrants will not be eligible for the Grand Prize.)

Special Evening Events

● If you register for four or more seminar/workshops, you'll receive FREE tickets to the four special evening events: Larry Wilson, the Wine and Cheese Reception, Ron Zemke, and Disneyland.
● If you register for fewer than four seminar/workshops, you can purchase the special events package at a discount rate of $30 for all four events.
● If you'd like individual tickets to Larry Wilson, the Wine and Cheese Reception or Ron Zemke, they can be purchased for $10 for each event. Individual tickets to Disneyland are not available through this brochure but may be purchased at the gate.

See page A22 for complete details on the special evening events.

Visa and Master Charge
You have the option of charging your registration fees to your Visa or Master Charge account. Simply complete that section of the Registration Form on the opposite page.

Note: Anyone registering for one or more sessions will receive a one-year subscription (worth $24) to Training: The Magazine of Human Resources Development. Individuals already subscribing to TRAINING in their own name will receive a one-year extension to their subscription.

Confirmation and Tickets
Your seminar/workshop confirmation will be mailed to you if advance registration and payment are postmarked by March 27. Session tickets can be picked up at the Registration Desk at the Disneyland Hotel starting at 7:30 a.m., April 13-16.

Cancellations
Cancellations with full refund accepted only if cancellation notice is postmarked by March 9, 1981. After that, the fee, less $10 per session, is transferrable to any other 1981 or 1982 TRAINING conference.

Time Schedule
Most sessions last 2½ hours and take place daily during the four-day Conference and Exposition. Morning sessions will start promptly at 9 and will end at 11:30. Afternoon sessions will start promptly at 1 and end at 3:30.

Information on specific room assignments will be available at the hotel.

Accommodations
A block of rooms has been set aside at the Disneyland Hotel at special lower rates for attendees. In order to qualify for these lower rates, you must use the special Hotel Reservation form which appears on page A21 in this brochure.

Tax Deduction of Expenses
An income tax deduction is allowed for expenses of education (including travel, meals and lodging) undertaken to maintain and improve professional skills. (See Treasury Reg. 1:162-5; Coughlin v. Comm. 203F. 2nd 307).

Free Exhibit Hall
Seminar registrants will automatically receive Exhibit Hall admission badges with their tickets. To register for the Exhibit Hall only, complete the form on the opposite page and bring it with you to the Exhibit Hall Registration Desk. (Do not mail.)

PLEASE FOLLOW THESE INSTRUCTIONS

Be sure to use a separate form for each person registering. (You may photocopy the blank form.)

1. Fill in your name, title, company name, address and telephone number (including area code).

2. Write in the number of each session you are registering for in the appropriate box. Please be sure to write only one session number in each box. Check back to the seminar descriptions elsewhere in this brochure to make sure you have written down the correct seminar number and that you write it in the proper box on the opposite page.

3. Fill in the blank spaces showing the total number of sessions selected and the total amount due. (Note: If you are registering for four or more seminar/workshops, you will automatically receive free tickets to all three special events, plus tickets to Disneyland for Thursday evening, April 16.) If you are registering for fewer than four seminar/workshops and would like to purchase the special events package or individual special events, check off the appropriate space. Fill in the total amount of money to be enclosed.

4. Check here if you are registering for four or more sessions.

5. Do you want additional FREE registration forms for entry into the Exhibit Hall? (Reminder: If you are signing up for seminars, you do not need to fill out a separate form.)

6. Check appropriate boxes in questions 8 through 13. If you answer is "Other" for any of the questions, please fill in appropriate response.

7. If you are charging your registration to Visa or Master Charge, complete this section.

8. Make check payable to TRAINING WEST and mail it with the registration form to TRAINING WEST Seminar Director, Conference Management Corporation, 500 Summer Street, Stamford, CT 06901.

16-10

INCL 17

TITLE:

THE CROSS-TRAINING OF SUBJECT MATTER EXPERTS

AND INSTRUCTIONAL TECHNOLOGISTS

The Cross-Training of Subject Matter Experts and Instructional Technologists

Marc J. Rosenberg

Bell System Center for
Technical Education

Today, more than ever, organizations are increasing their investment in training. Of all the resources devoted to this effort, the contribution of full-time personnel to training endeavors is perhaps the most significant. The emphasis on instructional and performance technology as a foundation for training development is increasing as well. To effectively integrate instructional technology skills with subject matter expertise is a major goal of an organization's training function. In order for these skills to be effectively applied to training development, it becomes important for subject matter experts (SMEs) to learn the basics of instructional technology and for instructional technologists (ITs) to gain an understanding of the relevant content areas they work with. Successful training development is usually associated with effective teamwork between development personnel. How each member of the team comes to understand the activities and contributions of other team members is critical to that success. It should be noted that the purpose of cross-training is not to create a situation of dual expertise in the team members. Clearly, each member must remain at the cutting edge of knowledge and ability in his/her field; to pursue such a high level of expertise in another field which clearly goes beyond a basic level of understanding would be inappropriate from the viewpoint of effective and efficient training development.

Training the SME in Instructional Technology

The systematic approach to the development of effective training programs can be a frustrating experience for the new SME who may have little experience with the field. SMEs may find their perceptions of these new development processes in conflict with past training experiences. Training organizations should recognize this and seek to assess the SME's initial background and under-

standing of the field, provide a working climate where the lack of appropriate skills is viewed as non-threatening, and make the SME aware of the organization's concern for improving his/her skills.

With a positive organizational environment established, programs for providing the SME with instructional technology skills can be implemented. Such programs may include a variety of approaches:

Direct Training Instructional Technology

Here the SME participates, either part time or full time, in courses, workshops, and seminars designed to improve a variety of skills. Such programs can be developed in a number of ways.

- *In-House Programs.* A train-the-trainer curriculum can be established on site. Courses are developed through consultation/purchase from outside sources, contracts with local educationl institutions, or through the internal course development activities of an instructional technology staff. Such a curriculum would include formalized classes, independent study, observation, and practical exercises and experiences. Comprehensive in-house training can be expensive and would, in most cases, require a relatively large potential population to justify costs. Yet such programs can be specifically designed to meet the needs of the organization and SMEs involved.
- *Outside Vendors.* The SME can receive instructional technology training through attendance at various workshops and seminars sponsored by outside vendors, universities, or professional associations. The availability and variety of such programs provides easy access to the organization which purchases "seats" for their people. While far less expensive than in-house training, outside vendor offerings will

be less "industry-specific" (more generic) than the in-house program.
- *Academic Training.* Enrolling SMEs in university courses and degree programs can provide an effective approach if local universities have adequate program offerings to meet the need. It is important to examine these programs carefully to match the program to the organization's goals. If there are a sufficient number of potential participants, new or altered courses which are more in line with those goals might be negotiated with the university. In addition, the university may agree to deliver the courses at the work site. A well established program in instructional technology may offer a wide variety of courses of interest. However, such a variety must be balanced with a relatively extended length of time required for completion. Also, while enrollment in some specific courses may be appropriate, the participation of an SME in an entire instructional technology program will probably be predicated on a complete re-evaluation of the career path of the SME and a decision by the organization as to where the efforts of the SME would be most valuable in the future. Only for SMEs who expect to spend a major portion of their future careers in a training environment and who see themselves as becoming instructional technologists, would a total academic program be advisable.

Consultation

In addition to direct training, consultation can provide a means for training SMEs in instructional technology. If the organization has a staff of instructional technologists, effective consultation arrangements can be established. Such consultations may revolve around a project under the joint development of an SME (or SME group) and an IT, or by using the IT as an advisor to a group of

INCI 17   17-1

SMEs. In the absence of an internal instructional technology staff, the organization can hire outside consultants from specialized consulting firms or from academic institutions.

The consultant's contribution can range from occasional instructional technology advice to an active and regular participation on a training project. The SME learns about instructional technology through exposure to the consultant's skills. The consultant teaches the SME how to assume some facets of the IT's role. Essential to this relationship, however, is the fact that although the SME begins to apply some instructional technology skills, the consultant remains as an essential part of the working relationship although the role of the consultant may change from a direct product orientation, to an indirect advisory role.

The establishment of internal instructional technology staffs is clearly more expensive than hiring outside consultants and probably not justified when the organization's contribution to the training effort consists mostly of part time SMEs and support personnel. However, as the commitment to training, especially training personnel, grows to a full time, permanent, and highly significant component of the organization, an internal instructional technology staff becomes more cost effective.

Time

A final variable to the mix of approaches for training SMEs in instructional technology is the effect experience has on the acquisition of skills. Over time, as the SME participates in increased and varied training activities, some basic instructional technology skills should transfer to the SME. The organization should be ready to invest a reasonable amount of time in the SME's continuing development as an all-around training professional.

Providing Subject Matter Understanding to the Instructional Technologist (IT)

Most organizations realize that the SME's value lies in his/her technical knowledge, backed by years of experience and superb job performance. To set this value aside in persuit of complete mastery of a second set of professional skills negates the large investment in the SME's expertise. This is exactly why there is a point of diminishing returns in

any attempt at total transfer of instructional technology skills to the SME, and why it is very difficult to find SMEs who are expert in their technical fields and in instructional technology. Therefore, it is probably not in the best interests of the organization to make instructional technology professionals out of SMEs, nor is it very likely that all the instructional technology needs of industry or government could be met by people with appropriate technical backgrounds. It thus becomes advisable to suggest some ways for the majority of ITs hired by industry to become acquainted with the content areas in which they work so that they will be better able to communicate with SMEs throughout the instructional development process. Two alternatives are offered here:

Consultative Role

The IT can apply effective consulting skills to help SMEs clearly define and specify the content scope of the instructional project. Through the application of learning hierarchies, task analysis, and other techniques, the IT should gain an insight into the subject area such that s/he can effectively reduce or eliminate the communications problems which inhibit the effective teamwork necessary for a successful working relationship.

Successful ITs are those who recognize the importance of consultation skills, have had some training or experience in the application of these skills, and who use these skills to learn as much as is necessary about the content area to get the development job done. Clearly, SMEs who perceive that the other members of the team have a genuine interest in their areas of expertise will be more positively oriented towards the input coming from those team members.

Researching the Content Area

Another approach for providing an opportunity for gaining an awareness of subject matter is for the IT to do as much of the pre-development research as possible. Such research might take the form of a front-end analysis, needs assessment, or other investigative and data gathering practice such as interviewing, content analysis of documentation, and orientations to working environments, products/services, policies and philosophies of the organization. Through these activities, ITs learn for themselves what they need to know about the content areas they are about to develop instruction for.

Neither of these two approaches, consultation and research, is meant to stand alone. More often than not, these tech-

niques are used together, so that the IT learns to ask the right questions in an effort to bring out information from the SMEs which is critical to successful instructional development.

A Large Scale Example

The Bell System Center for Technical Education, near Chicago, is one of the largest training centers in the country. It employs an SME staff, recruited on a rotational basis from the various telephone operating companies around the country. Its IT staff is permanently located at the Center and works closely with the SMEs in course development.

The Center uses a variety of methods to acquaint SMEs with instructional technology. It maintains a train-the-trainer curriculum, developed in part by the IT staff and in part by outside vendors. An instructional technology curriculum path is established for the SMEs who normally spend from one to three weeks a year in IT related training. Most of the fundamental instructional technology skills are taught through these courses, and while the SME is not expected to perform all tasks in an expert-like manner, the training does afford a basis for effective communication between the IT and SME. Of course, the SME is expected to keep abreast of technical developments in his/her field and the Center provides extensive assistance in this area as well. In addition, the instructional development process is so set up that it fosters a great deal of communication between the SME and IT. Team members are required to work independently and as a group on all aspects of training development. Thus the SME has considerable opportunities to observe and contribute to the instructional technology component of the project.

ITs also have opportunities to learn about the content area in which they work. Through a phase of the development process called the Job Study, ITs are required to investigate and document various aspects of the job for which training will be designed. This process requires both research and communication skills as the ITs seek to gain information about performance problems, target population, job tasks, etc. through a number of well specified procedures. Extensive interviewing is usually called for which allows the IT an opportunity to communicate directly with job performers. Additional information about the content area is gained when the IT performs an editing function on lesson materials provided by the SMEs.

New Members

Welcome to every new member below. We hope NSPI will meet your expectations—we would like to hear about your expectations if they are not met. Let your Chapter president know, your Regional Coordinators, your NSPI Board members, or call your NSPI Headquarters. We want to know your needs.

This month we are happy to welcome two new Sustaining Memberships: Executive Development Systems with Kay S. White and Ed Vaught; and DuoTech with Ruth Ashley and Judi Fernandez. Support like these helps bring extra services to the members without raising their dues.

Two new Organizational members this month are Johns Manville Sales Corp (Denver, CO) and University Hospital (London, Ont, Can).

Eunice Anderson, London, Ont, Can
Rick D. Archer, Boulder, CO
Michael F. Audet, Silver Spring, MD
B.D. Barnes, Montreal, Que, Can
George Berg, Phoenix, AZ
John W. Bergman, San Diego, CA
Elizabeth D. Borroni, Memphis, TN
R.V. Carroll, Denver, CO
Suzanne D. Carter, Cincinnati, OH
J.H.G. Cassells, Montreal, Que, Can
Steven P. Colman, Dayton, OH

Stephen Confer, Washington, DC
L.A. Conrad, Overland Park, KS
William R. Daniels, Mill Valley, CA
Peggy-Ann Dashiell, New York, NY
Alyce M. Dickinson, Kalamazoo, MI
William Donohue, Atlanta, GA
Jeffrey L. Eagan, Dubuque, IA
Rodney S. Earle, Bloomington, IN
Susan Fox, St. Louis, MO
James E. Franken, Orange Park, Fl.
Carol Freedman, Washington, DC
Sam Gallucci, Kearny, NJ
William Gellermann, New York, NY
Belle-Ann Goldberg, New York, NY
Marion Grosman, West Orange, NJ
Ann Gurr, Princeton, NJ
William J. Hawkins, Memphis, TN
Albertine C. Hay, San Diego, CA
Duane K. Heaps, San Francisco, CA
Carl D. Hess, Upland, CA
Marilyn E. Hornick, Houston, TX
Kay Hubbard, London, Ont, Can
C.T. Hughes, Washington, DC
Mary Hughes, London, Ont, Can
William J. Irwin, Toronto, Can
Janice Kay, Hillsboro, OR
Patricia K. Kelly, Little Rock, AR
Patricia Kirkham, Cumming, GA
Linda Lamb, London, Ont, Can
Charles R. Lemley, Tucson, AZ
Barbara R. Levine, Greenwich, CT
Debbie Long, Dallas, TX
Bennie R. Lowery, San Diego, CA
Cheryl M. Lowry, Columbus, OH
Edith Lynch, Anchorage, AK
Deidre F. McEachran-Smith, Batavia, IL

Joanie B. Massey, Denver, CO
Marvin Miller, Golden, CO
M.S. Miller, Montreal, Que, Can
Donald L. Mitchell, Yorktown, VA
Cathie Monk, Lakewood, CO
Jane H. Munster, Akron, OH
Naval Amphibious School, NAB Coronado, CA
Edith Nickel, Ann Arbor, MI
Stephen T. Norman, Laramie, WY
Jay Lawrence Phipps, London, Ont, Can
Dorothy Pizzulo, Haledon, NJ
Allison Reams, Houston, TX
Ernest M. Reshew, Silver Spring, MD
Christopher J. Robbins, Williamsburg, VA
Pat John Rosato, Danbury, CT
Tom L. Sams, Ft. Worth, TX
Jim Schultz, Deerfield, IL
E.J.M. Schuster, Montreal, Que, Can
Richard A. Scudder, Denver, CO
Richard C. Semack, Dearborn, MI
Norman Smith, Clifton, NJ
Lynn Standen, Southfield, MI
Carol Suzuki, London, Ont, Can
Nyles Teicher, New York, NY
Jamie B. Telegadis, West Hempstead, NY
Susan Thieme, Chicago, IL
34th Tactical Airlift, Little Rock, Ar
Carol S. Thompson, Falls Church, VA
Curt R. Thompson, Lafayette, LA
Susan Varner, Bloomington, IL
Lawrence Villanueva, Denver, CO
Ross Warren, Dorval, Que, Can
Harvey Wilkes, Brooklyn, NY
Marie E. Wyman, Grosse Pointe, MI

Cross-Training

Thus through a combination of instruction, consultation, and research, SMEs and ITs at the Bell System Center for Technical Education do learn about each other's worlds. And it is this cross learning, as much as any other aspect of training development at BSCTE, that contributes to project success.

Conclusions and Recommendations

Of course, very few organizations are as large as the Bell System or have such extensive training facilities and resources. However, the approaches outlined in the BSCTE example, along with other approaches suggested in this article, can be instituted at a variety of levels and scales depending on the size and commitment of the individual organization. In this light, it is possible to specify a number of general recommendations

about the cross-training of SMEs and ITs:

1. Establish a program to acquaint SMEs with instructional technology concepts and practices which is consistent with the ready availability of an IT staff and within the resource limitations of the organizations. Smaller organizations may wish to do this through the use of outside courses and consultants, while larger organizations may wish to internalize instructional technology training and expertise.

2. Recognize the limitations of cross-training and that the primary value of the SME remains with the maintenance of content expertise.

3. Provide for adequate time and support (both resource and emotional) for new SMEs to settle into their roles.

4. Provide instructional technology consultants who understand the role of all parties to a development effort and

who can effectively use consulting skills to foster effective working relationships and gain content understanding.

5. Encourage and provide vehicles for ITs to learn about content areas through front end analysis, observation, and research.

6. Continuously evaluate the effectiveness of the working relationship between SMEs and ITs and assess their abilities and needs with respect to each other's area of expertise.

Almost every training organization which seeks to improve the working climate for its SMEs and ITs, and thus improve the resulting instructional product, will find much value in these recommendations. Yet it is also important to remember that no two training organizations are exactly alike. In every case, a program of cross-training of SMEs and ITs must be based upon the real needs of all training professionals.

17-3

INCL 18

TITLE:

TASK ANALYSIS: A SURVEY OF PROCEDURES AND PRODUCTS

INCL 18

TASK ANALYSIS: A SURVEY OF PROCEDURES AND PRODUCTS

Paul A. Twelker
Margo Hicks
Roger Kaufman

US Army Training Support Center

June, 1977

TASK ANALYSIS: A SURVEY OF PROCEDURES AND PRODUCTS

PROBLEM STATEMENT

Procedures for task analysis in TRADOC schools reflect inconsistencies. Products are judged to be of subadequate quality in many cases. The reasons for this are not altogether clear, and since all instructional development hinges on the validity of the task analysis, it is essential for TPD to study the methods of task analysis that TRADOC employs.

OBJECTIVES

The objectives of the study were:

1. To document the task analysis procedures used at a number of TRADOC schools.

2. To determine the match between these procedures and the ISD recommended procedures.

3. To determine important factors in TRADOC schools' task analysis procedures that represent:

   a. Significant conceptual advances.

   b. Problem areas that require attention.

4. To aid TPD in determining recommendations indicating how task analysis effectiveness may be maximized.

5. To develop a checklist instrument that may be used by task analysts to critique their task statements.

PROCEDURES

Three SSP members visited ten TRADOC locations and two contractors preparing TEC training materials (See Inclosure 1). Survey instruments were designed, tested, revised and administered to collect data on the procedures for and products of task analysis.

FINDINGS

Through use of an evaluation instrument, the team found:

1. Three out of four task analyses examined used adequate procedures in development of the preliminary task lists.

2. One out of two used adequate procedures in the review and validation of task lists.

TASK ANALYSIS (CONTD)

3. One out of three provided documentation in the form of a flow chart depicting a sequence relationship of the steps of the task.

4. Two out of three were adequate with respect to the statement of the task. However, the validity of the task stated was not readily evaluated.

5. Two out of three gave complete lists of conditions.

6. One out of two provided a list of cues that initiate task performance.

7. One out of two provided an adequate list of standards.

8. No more than one out of two provided adequate lists of elements.

9. All references given were complete and up-to-date.

10. No task analysis included a list of knowledges/skills.

Through informal discussions and observation, the team found:

11. Motivation to do correct task analyses was high among those trained in CRI or exposed to ISD.

12. A high level of frustration due to imposition of unrealistic deadlines, in light of resource allocations, resulting in the skipping of critical steps in the procedure.

13. Procedures were for the most part understood, and in some instances, followed.

14. High regard for CRI and ISD was generally noted.

15. Many task analysts were enthusiastic about the contribution that they and their efforts will make to the Army.

PROBLEMS NOTED

1. Task lists are not related to missions, and in turn, missions are not related to Army/National needs.

2. Task lists are not validated against actual job performance in operational settings by observations, thus tasks listed are not actually performed and critical tasks are not listed.

TASK ANALYSIS (CONTD)

3. Training is being inappropriately selected as a solution to a performance problem.

4. Target population characteristics are not adequately described.

5. There is confusion regarding the definition of a task, and its relation to and differences from a need, mission, or function.

6. There is no quality assurance vehicle to assess the procedures and products of task analysis in the schools.

7. Expert talent for guidance on task analysis is not easily tapped due to cumbersome contracting procedures, inadequate TDI staff and non-use of faculty development people.

8. New analysts lack skills in doing task analysis.

9. Supervisors lack skills in evaluating task analysis efforts and outcomes.

10. There is redundance of the task analysis effort at stages of the instructional system development, between branches, and between branches and contractors.

11. Artificial limits are placed on the numbers of tasks within a job that may be listed on the analysis.

12. There is little guidance on the correct application of task analysis for jobs in supervision, management and administration.

13. Model task analysis formats have not been provided, nor is there any evidence of use of a clearinghouse of useful information for upgrading the quality of analyses.

14. The reporting of task analysis information is perceived as being constrained by the Soldiers' Manual ·egulation.

15. The publication of Soldiers' Manuals and SQTs are premature, forcing possible "concretizing" of inadequate information.

CONSEQUENCES OF PROBLEMS

1/2 People are not being trained to perform jobs/tasks critical to the missions required to fulfill Army/National needs. Likewise, people are being trained to perform job/tasks not required. Soldiers' skills are not combat ready, and training development costs are wasted.

3

TASK ANALYSIS (CONTD)

3. A significant percentage (40%) of training development costs will be wasted, and the problem will not be solved if it is environmental, motivational, etc., rather than skill deficiency.

4. Critical skill deficiencies may be omitted and existing skills ignored causing inadequate practice for some skills and redundant practice in others.

5. Task detailing may be either too specific or too general.

6/7/9 There is a deterioration in the quality of task analysis, a waste of manpower to revise materials at a later point.

8. Analyses are inadequate and incorrect. An inordinate amount of time is taken to do them. The first few months at the new job become frustrating because productivity is low.

10. Duplication of effort is costly. A positive outcome is that the checks-and-balances system catches errors.

11. The size of steps is based on number of steps allowed rather than the actual performance and target population ability.

12. Task analyses in these "soft skill" areas are incomplete, incorrect, and/or frequently list the subordinates task steps rather than the task steps of the supervisor/manager.

13. Resources are wasted re-creating wheels.

14/15 Information required for design is not available or requires major revision.

RECOMMENDATIONS

LONG TERM	PROBLEM # KEY
1. ˙Conduct a needs assessment, external mode, and continue to update the data base at least once each year. .	1
2. Perform mission analysis for all TRADOC areas.	1
3. Adopt a system approach process model, and distribute supplement to the ISD model with graphic illustration and definition of assess-ment/analysis levels.	5,11
4. Provide follow-up evaluation and technical assistance on a continuing basis to maintain the standards of analysis.	6/7

4

PROBLEM
KEY

__5.__ Develop the capability, and communication channels and vehicles,   13
to provide counsel and share information among all TRADOC entities.

FOR IMMEDIATE PAY-OFFS

1. Commit the resources (money, people, time) to do the analysis   2/11   *
according to the adopted model and standards.

2. Procedure

    a. Follow the ISD model   2/3
    b. Delineate responsibilities for each function   10
    c. Clarify standards for analysis and design

3. Product - TRADOC provide model documents for Task Analysis   11/13
worksheets and final products.

4. Personnel in analyst, designer and supervisor jobs: 8/9/12

    a. Select and hire qualified people for analysts jobs.   8
    b. Upgrade the skills of analysts in all levels of analysis,   3/4/7/8
as well as design.
    c. Implement an evaluation procedure to maintain the   6/7/8
standards for performance of analysts

5. Make TRADOC policy consistent in the state-of-the-art in   11/14/15
systematic analysis, design, development, implementation of a
performance system.

5

SCHOOLS, IN PRIORITY ORDER	DATE OF VISIT	SSP
Redstone Arsenal, Huntsville, AL	June 6, 1977	Twelker
Ft Belvoir, Alexandria, VA	May 11, 1977	Twelker
Ft Huachuca, Sierra Vista, AZ	Mar 28, 1977	Twelker
Ft Bliss, El Paso, TX	Apr 13, 1977	Twelker
Ft Sill, Lawton, OK	Apr 5,6, 1977	Hicks
Ft Rucker, Daleville, AL	Jun 3, 1977	Twelker
Ft Benjamin Harrison, Indianapolis, IN	Apr 11, 1977	Hicks
Ft Eustis, Newport News, VA	May 13, 1977	Twelker
Ft Leavenworth, Leavenworth, KS	Mar 9, 1977 May 12,13	Kaufman
Military Police School, Anniston, AL	Mar 16, 1977	Kaufman

CONTRACTORS

American Analysis Corp., San Francisco, CA	Apr 4, 1977	Hicks
Deterline Associates, Palo Alto, CA	May 5, 1977	Hicks

18-7

TITLE:

RELATING NEEDS ASSESSMENT, PROGRAM DEVELOPMENT,

IMPLEMENTATION, AND EVALUATION

RELATING NEEDS ASSESSMENT., PROGRAM DEVELOPMENT,

IMPLEMENTATION,· AND EVALUATION

Roger Kaufman
Robert G. Stakenas
Center for Needs Assessment and Planning
Learning Systems Institute
The Florida State-University
Tallahassee, Florida 32306

and

Jane C. Wager
Florida Credit Union League
Tallahassee, Florida 32304

June 1980

Occasional Paper No. 16
(Revised)

Relating Needs Assessment, Program Development, Implementation, and Evaluation
Roger Kaufman, Robert G. Stakenas, Center for Needs Assessment and Planning,
Learning Systems Institute, Florida State University, Tallahassee, Florida
and
Jane C. Wager, Florida Credit Union League, Tallahassee, Florida

> This is designed to help you understand the differences and
> relationships between needs assessment, program development,
> program implementation, and evaluation. Each section provides
> a purpose statement which will present the material to be
> understood. Each section has a number next to it to identify
> it for later questions and review. If you think you know the
> content already, go right to the questions at the end of this
> material. If you do not know it already, then proceed and when
> you are through check your understanding by answering the
> questions at the end.

The last ten years have witnessed an increasing interest in assessing
needs in various organizational settings, enhanced in part by the "account-
ability movement" with its emphasis on responsibility for accomplishments.
Consequently, several varieties of needs assessment have appeared, each with
its own assumptions, tools and procedures (Witkin, 1977). Here we recommend
and explain a basic type of needs assessment as a starting point for planning
and accomplishment and present a model for implementing this and other types
of needs assessments. Upon completion, you should be able to describe the
processes of external and internal needs assessment and relate them to orga-
nizational efforts and organizational results (the Organizational Elements
Model) and then further relate these to organizational impact upon society.

Need Defined.

1 | Purpose: Define the concept of _need_ and explain the pitfalls
encountered when using more than one definition.

The term "need" is used here in a singular way and this specific defini-
tion will be used in the context of this paper: as a noun--a gap between
"what is" and "what should be" in terms of results (Kaufman, 1972). Defining
needs as a gap between desired _results_ and observed _results_ means that no
solutions, how-to-do-its, or processes for closing the gap should be included
in the need statement. Including any type of solution or process in a state-
ment of need may reduce the options for meeting that need, and thus, foreclose
the possibility of finding new or creative ways of closing the gap. Or, by
using need as a verb (e.g., "We have a 'need' for more money") we risk imple-
menting a solution which may not fit with the basic underlying gap in results

(the real need). A need is a discrepancy--a difference in results--not necessarily a deficit.

External and Internal Needs Assessment.

2 Purpose: Define what is meant by external and internal needs assessment.

There are two possible overarching referents for needs assessment: one which looks at needs from a holistic point of view outside the organization--in society--doing the needs assessment; and one which looks at needs as seen within that organization. The first is called "external" needs assessment, and the second is termed "internal" needs assessment (Kaufman and English, 1979).

An external needs assessment attempts to identify the skills, knowledge, and attitudes which are important in order for someone to be at least self-sufficient, self-reliant, and not economically dependent once he/she is outside of the educational (or industrial) organization. The requirements for this "independence" should be used as the basis for planning (Kaufman and Carron, in press). In other words, an external needs assessment considers what individuals will have to do to be self-sufficient once they exit the educational or training system. Can they get and hold jobs? Survive socially and personally? Make contributions to their community and society? If there are gaps between what individuals can do in the current situations (the "what is") and when they <u>should</u> be able to do (the "what should be") with regard to the criteria of self-sufficiency and contribution, then action should be taken to close these gaps. Once these "external" criteria are set, the "internal" varieties of needs assessment become useful because <u>fewer assumptions</u> are required regarding the organization's effect or impact on society. The social usefulness of organizational efforts can thus be increased and maintained.

An internal needs assessment attempts to identify organizational goals, objectives, and means for accomplishing the societal results previously determined through an external needs assessment, and not by getting "blue sky" internal objectives. Most efforts in needs assessment are of the internal variety only, i.e., restricting the investigation to gaps in accomplishing current goals and objectives of the particular organization. Internal needs assessment are best augmented with external needs assessment data (Kaufman and English, 1979).

-2-

Organizational Elements Model.

3 | Purpose: Define the five basic parts of the Organizational Elements Model and relate each one to the others.

Having defined external needs assessment, how do we go about implementing one? In conducting an external needs assessment, it is necessary to relate both to people within the organization under study as well as to the reality of what people have to know and do outside of that organization—currently and in the future. These relationships can be clarified according to an Organizational Elements Model (Kaufman, 1979 and Kaufman and English, 1979) which will serve as the major tool for putting external and internal needs assessment into action.

Basic Concepts.

The organizational elements are:

INPUTS: The existing raw materials, ingredients, and starting conditions that an organization has on-hand with which to achieve its mission:

- Needs
- Goals
- Personnel
- Learners
- Money
- Equipment
- Laws
- Policies
- Facilities
- Plans

PROCESSES: The methods and means, the ways, the how-to-do-its, by which ingredients and materials are staged, managed, modified, and put into action to create useful results such as:

- Instructional Programs
- Management by objectives
- Staff development
- Participative management
- Supervision
- Production lines
- Curriculum
- Computer-assisted learning
- Systems approach
- System approach

PRODUCTS: The en-route results (or things) which an organization produces:

- Mastery of an objective by learners
- Validated training materials or procedures
- Windshields for cars
- A "chip" for a main frame computer

OUTPUTS: That which an organization delivers to society:

- Automobiles ready for delivery
- Personnel with productive skills who work for the organization and live in the community
- Graduates of an educational institution

OUTCOMES: The effects or impact of organizational results (outputs) in society:

- Positive balance of payments
- Persons who are economically self-sufficient
- Ecological balance

In order to assure that organizational efforts (inputs and processes) yield useful organizational results (products and outputs), they should be based upon current and future societal requirements. The interrelationship among these five organizational elements is shown in Figure 1. Implied in this figure is the fact that, seen from a holistic perspective, organizations (be they military, business, or school) are "internal" agents whose purpose is to contribute to useful societal goals and objectives.

Figure 1 shows each of five organizational elements. Organizational efforts include input and processes. Products and outputs are organizational results. And the effects of both of these sets are seen on society and "externally"; those societal results are termed outcomes. Four of the elements are "internal": they relate to organizational efforts and results. The one which is "external" relates to the effects of an organization in the host society or community.

Figure 2 shows a representation of the Organizational Elements Model with two other dimensions: "what is" and "what should be". This figure suggests that a process (note the solid arrows) which incorporates both internal and external needs assessment would include first describing, progressively, "what is" for inputs then move to processes, then to products, then outputs, and finally to outcomes. The purpose in following this sequence is to determine linkages and the required level of congruence between the elements.

After this "what is" assessment, the same procedure can be performed for "what should be" by starting with outcomes, then moving back through outputs, products, processes, and then finishing with inputs. Thus, the gaps between "what is" and "what should be" for each of the elements (or combination of elements) can be identified through discrepancy analysis (open arrows, fig. 3).

An important but subtle point should be emphasized regarding the "fit" between internal and external environments and between outputs and outcomes. It is not enough to simply count the number of "output" units produced by an organization. If the organization is to enjoy continuing success, its outputs must be valued and useful in the external environment. Thus, if automobiles are the output, they must be sold in order for the corporation to achieve its mission. In like manner, graduates of educational organizations must be able to perform effectively in economic and citizen roles in society if the legitimacy of educational institutions is to be validated and maintained. The criterion for and judgments of success ultimately come from the external not the internal environment.

-4-

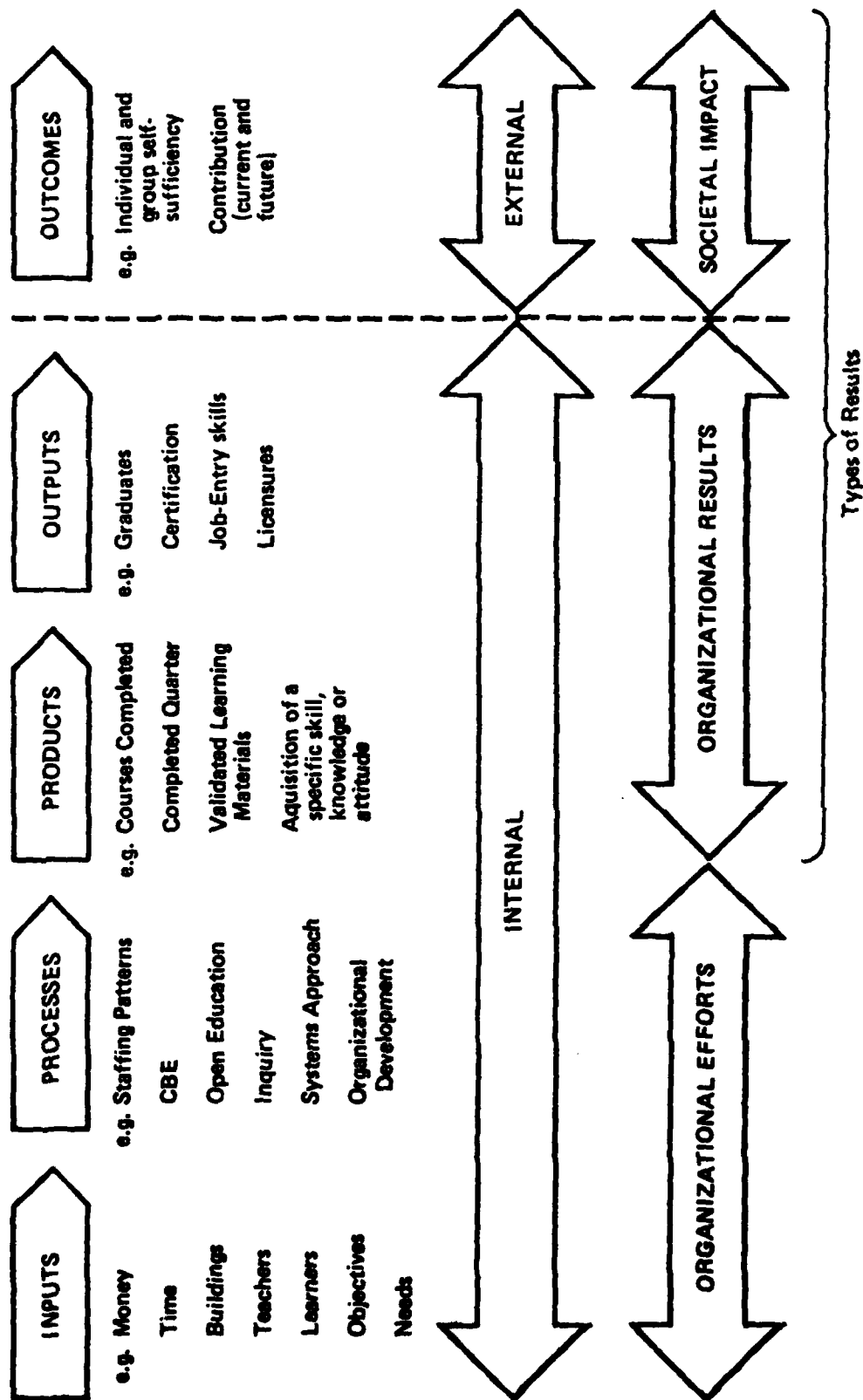Figure 1. The Organizational Elements Model including some educational examples of each and the relationship between the elements and the Internal and External frames of reference.
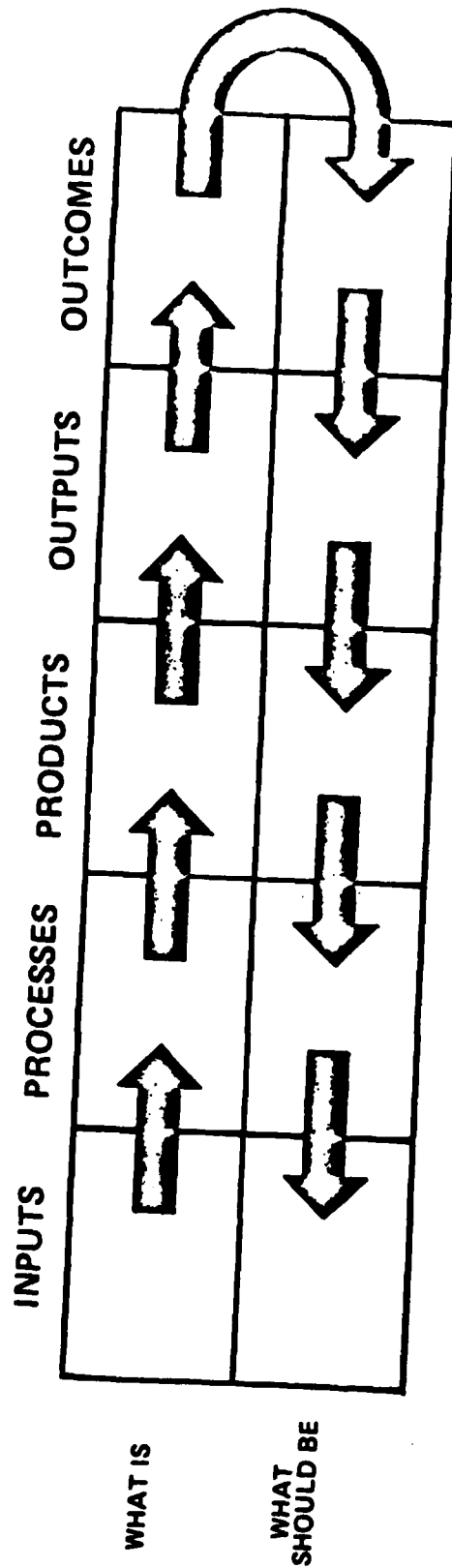
(After Kaufman, 1979)

Figure 2. Designing Needs Assessments and Evaluations Based on the Organizational Elements Model

Kaufman, Stakenas and Wager

INPUTS   PROCESSES   PRODUCTS   OUTPUTS   OUTCOMES

WHAT IS

WHAT
SHOULD BE

Partnership Planning.

4 | Purpose: Explain the importance of partnership planning in a useful needs assessment.

Partnership planning is an integral component of any useful needs assessment. In order to accurately determine "what is" and "what should be" for a particular set of symptoms or conditions, representatives of groups affected by the problem and its solution should be involved formally in the needs assessment effort. By involving those people who will be or could be effected by the outputs of the system, there will be a higher probability of acceptance of the results and a higher probability that all important aspects of the problem(s) will be identified. Partner group representatives, i.e., learners, educators, and community members, have the responsibility of determining gaps between current results and desired (or required) results according to their values. The partner groups then compare their "perceived needs" in order to find and agree upon a common set. These perceived needs should be justified and documented by external empirical data concerning requirements for self-sufficiency in order to include both "felt needs" as well as documentable and empirically justified needs.

Frequently disagreements arise over means (processes) or how-to-do-its, rather than gaps in results. There are times when people argue about means and believe that they are dealing with ends. Agreement and consensus is usually increased by shifting all discussions from means to ends, ideally to gaps in outcomes.

Change and Maintenance Requirements.

5 | Purpose: (a) Define what is meant by change requirements and maintenance requirements.

Purpose: (b) Explain why all gaps in the organizational elements are not necessarily "needs".

Given the data base compiled from the partner groups, the needs assessment process determines the actual gaps between "what is" and "what should be" for each of the organizational elements, shown as open arrows in Figure 3. Also included in this analysis is a listing (shown at the bottom two rows of Figure 3) of that which should be changed--change requirements--as well as a determination of that which should be continued and maintained--continuation or maintenance

requirements. Listing that which is to be changed as well as that which must be continued highlights the fact that needs assessment and planning not only deal with change but also with preserving that which is in-process and useful. Also, a discrepancy is not necessarily a deficiency (Scriven and Roth, 1978).

As a reminder, earlier it was stated that in the context of the Organizational Elements Model, "need" is defined as a gap between "what is" and "what should be" in terms of results. "Results" were shown in Figure 1 to include products, outputs, and outcomes. Although input and process gaps may also be identified, these gaps should not be called needs. They are simply gaps in means to achieve a particular end result. Gaps in process and/or inputs might be called quasi-needs. However, care should be exercised not to equate gaps in processes or inputs with gaps in results.

Methods and Means.

6 | Purpose: Define the purpose of methods and means in a needs assessment.

When the listing of change and maintenance requirements is completed, the needs (gaps) are placed in priority order, then the balance of planning may be continued with the derived data. At the bottom of Figure 4, planners or designers should list the possible methods-means or interventions (programs, projects, curriculum, techniques, etc.) which might serve to close the gaps or maintain those results which have been selected for continuation. Then, the interventions which meet feasibility and effectiveness criteria are selected (row marked "Selected Interventions"), and implementation is ready to begin. Up to this point, this process has yielded the requirements for maintenance and change for each of the organizational elements, and further, has identified possible methods and means (strategies, tools and procedures) for reaching the required products and outputs.

A needs assessment which only looks at gaps in processes (methods-means) is more of a "wish list" than a needs assessment. For example, assessments which product statements such as, "We need to provide more inservice training for the supervisors" or "We need more audiovisual equipment for our staff training program" would fall into a "wish list" category because they assume that important gaps in results exist--an assumption which a needs assessment should verify or reject with valid, objective data. Unfortunately, many current needs assessment models ask only for choices among various interventions (team teaching or differentiated staffing; organizational development or system approach; individualized instruction or computer-assisted learning, etc.). One

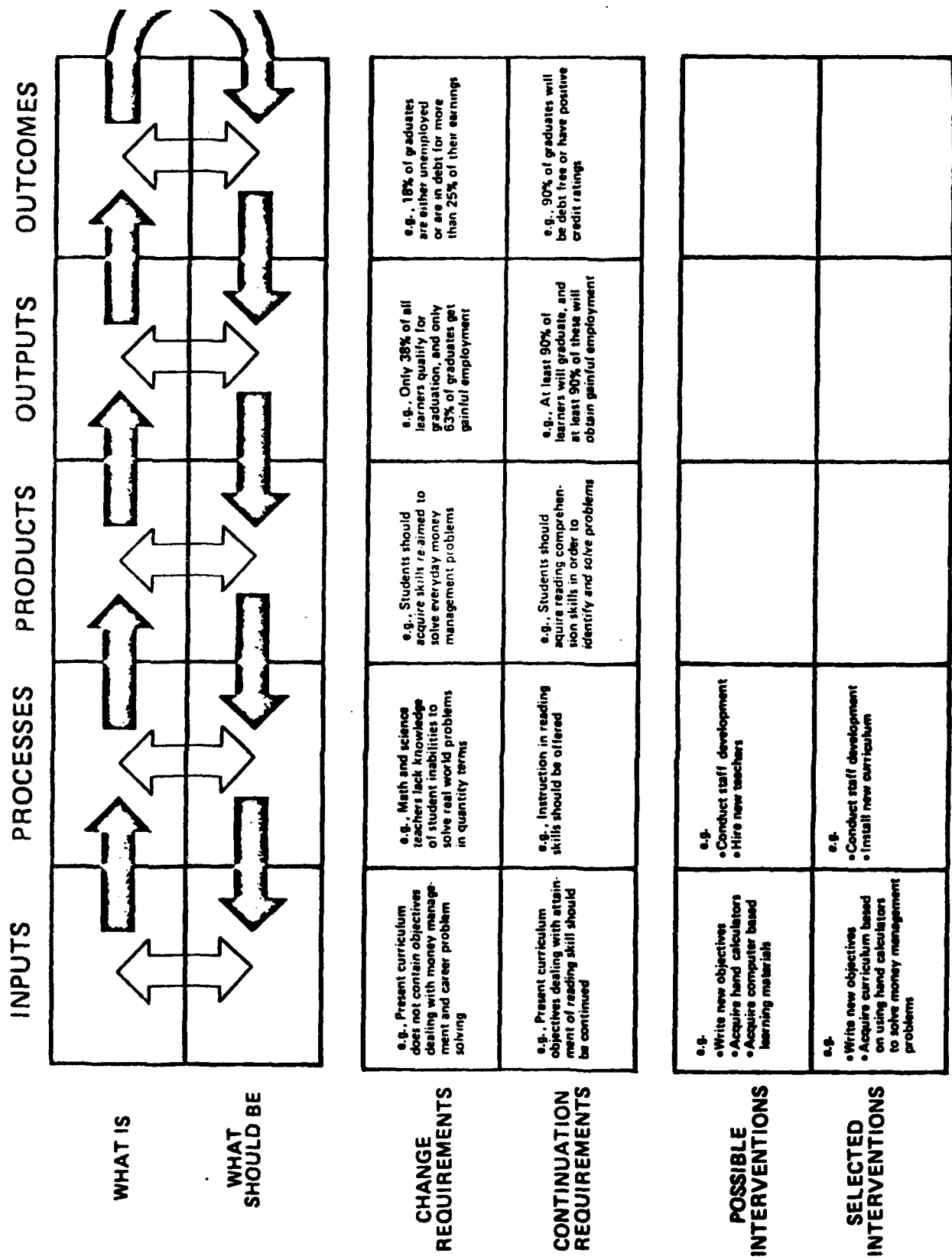|	INPUTS	PROCESSES	PRODUCTS	OUTPUTS	OUTCOMES
WHAT IS					
WHAT SHOULD BE					
CHANGE REQUIREMENTS	e.g., Present curriculum does not contain objectives dealing with money management and career problem solving	e.g., Math and science teachers lack knowledge of student inabilities to solve real world problems in quantity terms	e.g., Students should acquire skills re aimed to solve everyday money management problems	e.g., Only 38% of all learners qualify for graduation, and only 63% of graduates get gainful employment	e.g., 18% of graduates are either unemployed or are in debt for more than 25% of their earnings
CONTINUATION REQUIREMENTS	e.g., Present curriculum objectives dealing with attainment of reading skill should be continued	e.g., Instruction in reading skills should be offered	e.g., Students should acquire reading comprehension skills in order to identify and solve problems	e.g., At least 90% of learners will graduate, and at least 90% of these will obtain gainful employment	e.g., 90% of graduates will be debt free or have positive credit ratings
POSSIBLE INTERVENTIONS	e.g. •Write new objectives •Acquire hand calculators •Acquire computer based learning materials	e.g. •Conduct staff development •Hire new teachers			
SELECTED INTERVENTIONS	e.g. •Write new objectives •Acquire curriculum based on using hand calculators to solve money management problems	e.g. •Conduct staff development •Install new curriculum			

Figure 4. Linking Problem Solving and Planning to Needs Assessment Information

Kaufman, Stakenas and Wager

should only make functional decisions among possible alterntive ways and means for doing a job based upon the results, both internal and external, which have to be achieved. Asking people about what resources or tools they want without reference to required results is a poor method for useful planning and development.

Evaluation and Needs Assessment.

7 | Purpose: Explain the importance of evaluation _in_ needs assessment, and show how needs assessment and evaluation relate.

After implementing the selected interventions, formative evaluation should take place. Figure 5 shows evaluation activities as broken arrows. Evaluation starts by going through the "what is" elements and relating each to the "what should be" requirements to determine the extent to which the gaps have actually been closed and continuation requirements met. This evaluation phase determines the extent to which one has performed that which has been planned--process evaluation. Summative evaluation takes place when one compares expected results with actual results--when one examines products, and more appropriately, outputs and outcomes. Evaluation looks at gaps between what was intended and what was actually accomplished, while needs assessment examines the gaps between what should be accomplished and that which was actually accomplished.

Finally one should use this evaluation base for continuing the needs assessment by a shift to the new "what is" for each of the elements. Then, in the same manner, as shown in Figures 1 and 2, repeat the process based upon the changes wrought through previous efforts. Needs assessment, thus is a continuing process and may be linked with planning, development and evaluation.

The Steps for Conducting a Needs Assessment.

8 | Purpose: Provide an external and internal needs assessment checklist.

The steps involved in conducting an external needs assessment are summarized in the checklist below.

1. Obtain commitment of the initial planning group to use an external referent for planning, not just the existing goals and objectives of the agency, department, or section.
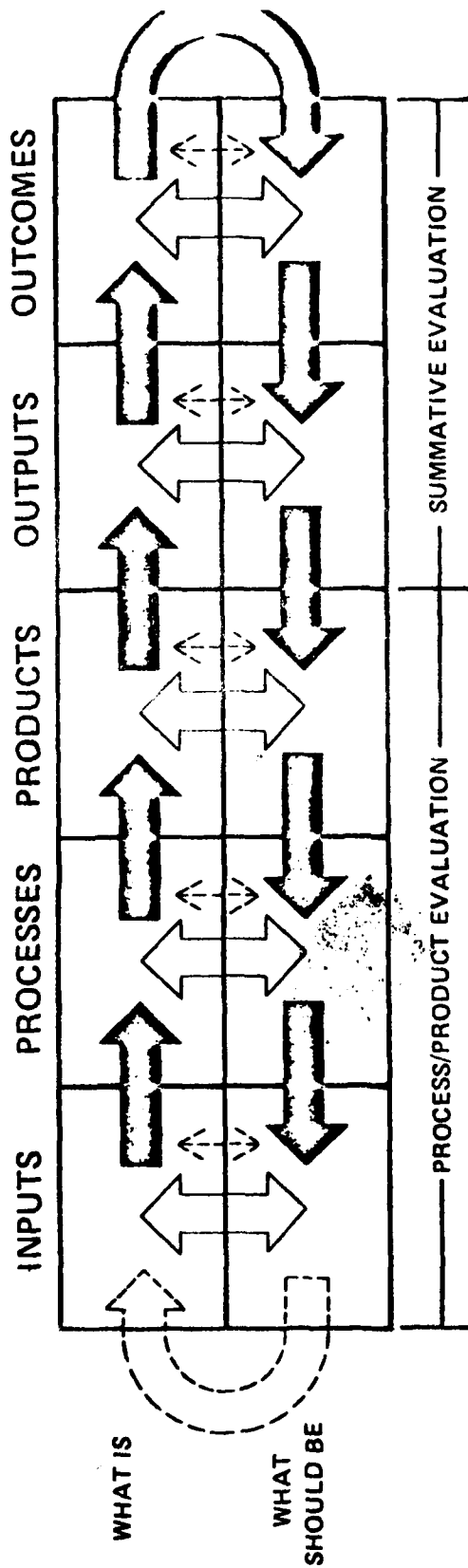
Figure 5. Evaluation—Shown as broken lines——Is the determination of, "Have we accomplished that which we set out to accomplish?".

Kaufman, Stakenas and Wager

2. Identify the various partnership groups and their constituency including respresentatives (learners, educators, and society/community for education).

3. Obtain current input, process, product, output and outcome data of the organization.

4. Obtain data on _future_ outcome requirements and subsequent output, product, process, and input requirements of the organization.

5. Working with the partners, determine the gaps in the organizational elements and place gaps to be resolved in priority order based perhaps on the "cost" to close the gap and the "cost" to ignore the gap.

Implementation and Evaluation Checklist

9 | Purpose: To list the steps in an implementation and evaluation checklist.

1. List change and maintenance requirements.

2. List and select possible interventions (methods and means) which might serve to close identified needs (gaps).

3. Determine the extent to which you have accomplished what you set out to accomplish.

4. Be prepared to consider new needs which might arise during the course of planning.

5. Repeat, at least periodically, the needs assessment procedure.

TEST YOURSELF -- PART I

Test yourself on the main concepts that have been covered.
(The number of each question is the same as the section where the concepts
are presented.)

The correct answers to these nine questions are presented after "Test
Yourself - Part II".

1. Define the concept of need and explain the pitfalls encountered when
   using more than one definition.

2. Define what is meant by external and internal needs assessment.

3. Define the five basic parts of the Organizational Elements Model and
   relate each one to the others.

4. Explain the importance of partnership planning in needs assessment.

5. (a) Define what is meant by change requirements and maintenance requirements.
   (b) Explain why all gaps in the organizational elements are not necessarily
       "needs".

6. Define the purpose of methods and means in a needs assessment.

7. Explain the importance of evaluation in needs assessment.

8. What are the steps in conducting a needs assessment?

9. What are the steps required to implement and evaluate after completing
   a needs assessment?

TEST YOURSELF -- PART II

The concepts of needs assessment are useful in education, history, and the military--anywhere interventions are designed and used to improve results. The challenge is to select the appropriate method to correctly analyze and diagnose organizational problems. A classification table has been prepared to assist you in making such decisions. Review the type of problem and the recommended actions shown in this table. Then proceed to analyze the hypothetical scenario which appears below.

Classification Table: Types of Problems and Recommended Actions

TYPE OF PROBLEM	RECOMMENDED ACTION
A. Adequacy of raw materials, person- nel, ingredients, facilities	Determine input gaps
B. Effectiveness and efficiency of organizational processes	Determine process gaps
C. Usefulness of products/subcom- ponents produced	Determine product gaps
D. Usefulness of organizational "deliverables" to society	Conduct internal needs assessment
E. Organizational or individual self-sufficiency and impact on society	Conduct external needs assessment

THE SCENARIO

The Great Atlantic Fuel Company has been having problems with fuel shipments which have been found to be contaminated. In analyzing the problem the company found that loaders often leave tank valves open and unattended after filling shipping tanks. The contamination problem was first noted when a jet airplane crashed into a tenement area, narrowly missing a housing development but destroying a local job placement center. Fortunately no one was killed on the ground; but low income people in the neighborhood were slower in finding jobs after the crash and resulting devastation.

Examples from this scenario have been selected and listed in a problem chart which is on page 17. Using information given in the Classification Table, state the actions that should be taken to assess needs in relation to the specific problem data. For example: To determine the impact of the property destroyed by the plane crash, would you implement an external needs assessment, an internal needs assessment, or one of the other types of needs assessment?

19-15

PROBLEM TABLE

Data regarding the problem	Recommended action (type of Gap Analysis)
1. Impact of property destroyed by plane crash on inhabitants	1.
2. Contaminated fuel shipments	2.
3. Workers responsible for loading tankers	3.
4. Filling fuel containers	4.
5. Decreased rate of job placement	5.

ANSWERS--PART I

1. The definition of need as a gap between "what is" and "what should be" in terms of results is a more useful definition than those that mention solutions or processes in their need statements. Using need as a verb may foreclose the possibility of finding new or creative ways of closing the gap, or from dealing with the actual, more basic problem.

2. An external needs assessment attempts to identify the skills, knowledge, and attitudes which are necessary for individual self-sufficiency in society currently and in the future. Once self-sufficiency criteria are set, an organization can use an internal needs assessment method to identify goals and objectives for accomplishing required societal results.

3. Inputs - raw materials, ingredients, and starting conditions that an organization has with which to achieve its mission.
   Processes - methods and means by which ingredients and materials are managed, modified, and put into action to create useful results.
   Products - en-route results which an organization produces.
   Outputs - that which an organization delivers to society
   Outcomes - impact of outputs in society.

   Inputs and processes are the organization efforts which lead to organizational results in the form of products and outputs. All four of these "internal" elements impact on society by producing results that are termed outcomes.

4. By involving those people who will be or could be affected by the outputs of the system, there will be a higher probability of acceptance of the results and a higher probability that all important aspects of the problem(s) will be identified.

5. (a) Change and maintenance requirements are listed of those things to be changed or continued within each organizational element to ensure that gaps between the "what is" and "what should be" will be closed.

   (b) Need is defined as a gap between "what is" and "what should be" in terms of results. Results include products, outputs, and outcomes. Gaps in inputs and processes therefore, should not be called needs.

-16-

13-16

6. Methods-means are those interventions which might serve to close identified gaps or maintain those results which have been selected for continuation.

7. Evaluation is the determination of "have we accomplished that which we set out to accomplish?" Needs Assessment in it's most basic form determines gaps between "what we accomplished" and compared to what we should accomplish. We compare "what is" (observed results) with "what should be" (standards) and then make judgments based on the importance and size of discrepancy noted. These judgments provide a basis for selecting gaps to be removed.

8. See checklist on page 11, 13.

9. See checklist on page 13.

ANSWERS--PART II

1. Impact of property destroyed by plane crash on inhabitants--conduct external needs assessment to determine the impact of delivering contaminated fuel on society.

2. Contaminated fuel shipments--conduct internal needs assessment, to determine if organizational results are aligned with societal results.

3. Workers responsible for loading tankers--identify input and process gaps to determine possible problems in quality or quantity of workers and loading techniques at the Great Atlantic Fuel Company.

4. Filling fuel containers--identify process gaps to determine possible problem in method used to fill fuel containers.

5. Decreased rate of job placement--conduct external needs assessment to determine the impact of plane crash, and what caused it, on the self-sufficiency of people in the areas surrounding the plane crash site.

References

Kaufman, R. Identify and Solving Problems, Second Edition. La Jolla,
CA: Univeristy Associates Publishers, 1979.

Kaufman, R. and English, F. W.. Needs Assessment: Concept and Application.
Englewood Cliffs, NJ: Educational Technology Publications, 1979.

Kaufman, R. and Carron, A. S. Utility and self-sufficiency in the selection
of educational alternatives. Journal of Instructional Development,
In Press.

Scriven, M. and Roth, Jane. Needs Assessment: Concept and Practice. New
Direction for Program Evaluation, 1, (1), Spring, 1980.

Witkin, Belle R. Needs assessment kits, model, and tools. Educational
Technology, 17 (11), November, 1977.

Additional Readings

English, F. W. The politics of needs assessment. Educational Technology
17, (11), November, 1977.

Houston, R. W. and associates. Assessing school/college/community needs.
The Center for Urban Education, The University of Nebraska at Omaha;
3805 North Sixteenth Street, Ohaha, Nebraska, 68110, 1978.

Kaufman, R. and Thomas, Susan B. Evaluation Without Fear. New York, NY:
New Dimensions, Franklin Watts Publishers, 1980.

Melton, R. G. Application of needs assessments in the public schools:
Three case studies. Educational Technology, 17 (11), November, 1977.

Trimbly, Madelin J. Needs assessments models: A comparison. Educational
Technology, December, 1979.

DATE
ILME