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IMPACT OF REALTRAIN AND CONVENTIONAL COMBINED ARMS EXERCISES ON PARTICIPANT MORALE

Paul R. Bleda and John Hayes

INDIVIDUAL TRAINING AND SKILL EVALUATION TECHNICAL AREA

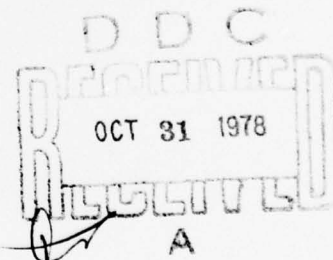


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August 1978

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This research examined the immediate impact on the morale of combat units stationed in Germany of two types of combined arms exercises. Armor and infantry personnel undergoing 1 week of either platoon-level REALTRAIN (n = 22 platoons) or conventional field exercises within a battalion Army Training and Evaluation Program (ARTEP) (N = 9 companies) were administered an instrument designed to assess nine specific morale components. These components reflected respondents' motivation before and satisfaction after										

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20. the exercises, as well as their general job satisfaction and unit cohesiveness in the Army. The results indicated that higher levels of exercise-specific satisfaction were evidenced after completion of REALTRAIN than expected before, whereas the reverse was found for more conventional exercises. A similar pattern of findings emerged for certain job-satisfaction dimensions, but the pattern was not as pronounced as that related to the exercises. In sum, REALTRAIN had a significant positive impact on six ($p < .05$) of the nine morale components and no effect on three, while the conventional exercises had a positive influence on only one component and a negative effect on six ($p < .10$).

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Paul R. Bleda and John Hayes

INDIVIDUAL TRAINING & SKILL EVALUATION TECHNICAL AREA

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Career Effectiveness
in the Modern Army

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FOREWORD

Since 1972 the Army Research Institute for the Behavioral and Social Sciences (ARI) has conducted research on increasing soldier effectiveness through appropriate motivation and training. Results of ARI research on motivation and morale has produced results of interest to the Deputy Chief of Staff for Personnel. ARI research on training has developed and evaluated new techniques which are implemented by the Army Training and Doctrine Command (TRADOC). The training techniques encompass both individual skill development and coordination of tactical behavior in crews and Army units. TRADOC has identified small-unit tactical engagement simulation training as its highest behavioral-science research priority. The REALTRAIN method of tactical engagement simulation developed by ARI provides realistic, motivating training for small combat-arms units as large as reinforced platoons.

This report uses an ARI-developed measure to compare the morale of troops using REALTRAIN with that of troops in standard Army field exercises. It provides a quantitative confirmation of soldiers' enthusiasm for REALTRAIN. Data were collected during the REALTRAIN evaluation (described in ARI Research Report 1191) and field exercises in the U.S. Army, Europe (USAREUR) during 3 November 1975 to 5 March 1976. Work was done under Army Project 2Q762722A764 (FY 77), Training and Education, with the aid of the ARI Field Unit in USAREUR. Special support was provided by the TRADOC Mobile Training Team that implemented the REALTRAIN exercises: MAJ L. M. Jackson, Armor School; MAJ R. N. Leary, Infantry School; MAJ D. M. Hooper, Artillery School; MAJ L. E. Word, ARI, who also helped plan this research; CPT A. A. Severino, Combat Arms Training Board (CATB); CPT G. W. Heckman, Infantry School; and SGT B. A. Lamb, CATB. Both LTC J. L. Madden, former TRADOC Program Manager for Engagement Simulation, and LTC G. J. Stapleton, Manager, provided welcome support and encouragement.



JOSEPH ZEIDNER

Technical Director (Designate)

IMPACT OF REALTRAIN AND CONVENTIONAL COMBINED ARMS EXERCISES ON
PARTICIPANT MORALE

BRIEF

Requirement:

The research was undertaken to measure formally the reported effects on soldiers' morale of taking part in REALTRAIN engagement simulation field exercises versus taking part in standard Army field training exercises.

Procedure:

An Army Research Institute team accompanied the Mobile Training Team implementing the REALTRAIN exercises, which were conducted for 3 weeks at each of four divisional training areas in U.S. Army, Europe (USARUER) from November 1975 to March 1976. Participants were 542 armor and infantry personnel in 22 platoons; 395 cadre personnel served as controllers. Troops in nine battalions also were assessed during formal Army Training and Evaluation Programs (ARTEP) in April-May 1976.

Participants ($n = 1,200$) filled out a questionnaire designed to measure various facets of job-related motivation and satisfaction. Half the members of each unit filled out the instrument before the training exercise, the other half afterward. REALTRAIN participants were expected to express greater satisfaction with REALTRAIN and with the Army after the exercise than they had anticipated. ARTEP participants were expected to be less satisfied after the exercise than before.

Findings:

The responses of participants strongly supported the predictions. Overall, REALTRAIN had a significant positive impact on six of the nine different morale components and no effect on three. The conventional exercises had a positive influence on only one component and a negative effect on six.

Utilization of Findings:

The success of REALTRAIN in developing favorable attitudes among soldiers underscores the advantages of more intrinsically rewarding training programs in the Army. The possible benefits in using training exercises that have intrinsic rewards include a greater motivation to work, more job satisfaction, and a more positive orientation toward the Army in general.

The instrument used to measure satisfaction has been used in several later research projects.

IMPACT OF REALTRAIN AND CONVENTIONAL COMBINED ARMS EXERCISES ON
PARTICIPANT MORALE

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IMPACT OF REALTRAIN AND CONVENTIONAL COMBINED ARMS EXERCISES ON PARTICIPANT MORALE

INTRODUCTION

Military and industrial researchers have expended much effort to form the construct of morale, delineate its determinants, and specify its indicators (e.g., Campbell & Pritchard, 1975). Morale is emphasized due to its presumed influence on behaviors detrimental to organizational effectiveness such as personnel turnover and delinquency (Bauer, Stout, & Holz, 1976). This work extends previous research in the military area (Holz & Segal, 1975) by assessing the impact of an engagement-simulation training program on the morale of combat personnel. The findings have direct implications for Army managers who seek to establish and maintain high levels of morale and combat readiness in units by using REALTRAIN instead of more conventional forms of combined arms training.

Dimensions of Morale

Motowidlo and Borman (1977) have defined morale as "a psychological state which is shared by members of a group and which consists of general feelings of satisfaction with conditions impacting the group and strong motivation to accomplish group objectives. . . ." According to this definition, morale may be conceptualized along the dimensions of (a) motivation, (b) satisfaction, and (c) unit cohesiveness. These general dimensions may be differentiated further depending on the particular circumstances in which morale is assessed. (a) Motivation plays an important role in determining morale in that activities must foster a sense of purpose and meaningfulness in participants. (b) High morale also implies that individuals derive some degree of satisfaction from the pursuit and achievement of work-group goals. (c) Morale in a military organization depends on a unit's cohesiveness. Cohesiveness is enhanced by the member's sense of sharing a common, meaningful purpose (Shils & Janowitz, 1948). The foregoing definition does not include such traditional conceptions of wartime morale as exultation of patriotic ideals and perseverance in the face of adversity.

The constructs of motivation and satisfaction can be framed in terms of expectancy theory (Porter & Lawler, 1968). Expectancy formulations assume that motivation is a multiplicative function of the performers' beliefs about the probability that their efforts will result in effective performances and that desirable outcomes will follow such performances. For combat personnel undergoing combined arms exercises, several classes of potentially valued outcomes may motivate behavior. Intrinsic rewards, such as a sense of achievement and responsibility, may be derived from reaching specific mission objectives or

from attaining a high level of combat readiness. Social benefits, such as status, attention, and praise, are received when effective performance is recognized publicly. To the extent that participants perceive such positive outcomes as being present during an exercise, they will evidence satisfaction with the training program. Both motivation and satisfaction are tied closely to the notion of valued outcomes. In particular, motivation reflects the affect anticipated for achieving certain work goals while satisfaction denotes the affect actually experienced once such outcomes are obtained.

Combined Arms Tactical Exercises

REALTRAIN. The Army currently is implementing at the squad and platoon levels the REALTRAIN combat engagement-simulation technique (Root et al., 1976). REALTRAIN for combined arms training may be distinguished from more conventional training by the following characteristics: (a) a free-play form of maneuvers, (b) an objective method of casualty assessment, (c) an After-Action Review, and (d) a repetition of training exercises (see Table 1).

In REALTRAIN, no subordinates are ever more than two command levels away from the originator of their mission-related duties. The relatively few command levels through which orders pass reduce the likelihood of information distortion and increase the probability that all participants will have an overall perspective of mission objectives. Within proscribed territorial and time constraints, participants pursue their respective missions without external interference. Casualties are determined during the meeting engagements when a controller with a squad/crew receives or transmits information via radio that a number, either on the helmet of a soldier or on a vehicle, has been sighted (through a telescope) by a member of the opposing force. The circumstances surrounding each casualty are evaluated after each exercise through an extensive group discussion among all participants. Finally, similar exercises are repeated during ensuing training to give participants the opportunity to correct previous mistakes.

At a superficial level, REALTRAIN appears to have certain features that may increase participant expectations that their efforts will result in effective performance and that such performance will lead to recognition as being combat ready (valued outcome). (a) Successes and failures within the free-play exercises reflect the actual performance of units rather than a predetermined part of a scenario. (b) The immediate and objective appraisal of casualties may indicate the extent to which each performer contributes to his unit's effectiveness and the degree to which each unit influences the outcome of meeting engagements. (c) During the After-Action Review, positive and negative peer comments can be directed toward unit members who perform well or poorly, respectively. (d) The repetitive nature of the various exercises would seem

Table 1

Comparisons of REALTRAIN and ARTEP Combined Arms Tactical Training

Relevant dimensions	Type of combined arms tactical training	
	REALTRAIN	Conventional
Command level	Squad and platoon-level engagement simulation.	Multi echelon ARTEP evaluation of battalions.
Nature of exercise	Free-play engagements between opposing forces under only time and territorial constraints.	Sequence of prearranged "scenarios" with a fixed schedule of aggressor activities and planned execution of combat tasks by tested unit.
Type of casualty assessment	Objective determination of weapons effects through use of devices (i.e., scopes, simulators, and net control radio system) monitored by controllers assigned to each weapons unit. Immediate feedback regarding "kills."	Casualties determined by subjective judgment of a limited evaluator force.
Evaluative feedback	After-Action Review conducted immediately after each exercise which involves group discussion about circumstances surrounding "kills" inflicted and sustained.	Evaluative critique of the tested unit made by the evaluating force following completion of the formal testing phase.
Tactical training procedure	Successive repetitions of two-sided free-play.	One trial performance of a series of specified training tasks.

to permit participants to improve their performances by increasing their efforts to avoid previous errors. According to the proponents of REALTRAIN (Root et al., 1976), these features heighten the personal involvement of participants and their perceptions of the meaningfulness of the activities.

Conventional Field-Training Exercises. Conventional field-training exercises were conducted in the testing phase of an ARTEP (Army Training and Evaluation Program) for combined arms. The formal testing phase involves the multiechelon evaluation of Armor and Infantry battalions. The evaluation seeks to determine the combat readiness of each unit by assessing its proficiency in terms of a systematic series of combat-related tasks including meeting engagements under simulated combat conditions. The particular field exercises used in the present ARTEP retained some characteristics of conventional training and evaluation, including (a) a fixed schedule of evaluator-determined activities, (b) a subjective method of casualty assessment, (c) a critique following completion of the testing phase, and (d) single exposure to the specified training tasks (see Table 1).

During the ARTEP testing phase, specific commands emanating from the battalion headquarters staff were sent through the established chain of command to individual soldiers. While the headquarters staff planned and coordinated missions, the line troops maintained an around-the-clock security watch and used much of their time for routine tasks. During any meeting engagements with aggressor forces, casualties and overall unit effectiveness were determined by a small team of evaluators who observed the proceedings from a suitable vantage point. Evaluations of unit performance were conveyed to battalion commanders at the end of the testing phase through critiques given by the evaluating force.

Intuitively, certain facets of the conventional ARTEP field exercises would seem to lower the personal involvement of combat units and the soldiers' perception of the meaningfulness of their activities. In particular, the line troops may lack an overall perspective of each mission objective because the orders conveyed to lower levels of command are unlikely to incorporate the rationale underlying the staff's decisionmaking process. Motivation may be reduced by the performance of routine tasks for extended periods between exercise-specific duties. Motivation to perform effectively during the actual maneuvers may be depressed further by the lack of objective or immediate feedback regarding the number of casualties inflicted and incurred. Thus, line troops may perceive as meaningless many activities performed before and during conventional ARTEP exercises. If performers consider their activities meaningless, their satisfaction with various facets of the exercises will be diminished.

The impact of REALTRAIN and more conventional training exercises on motivation and satisfaction may be examined in terms of the change in pre- and postexercise soldier responses. Relevant theory (Porter & Lawler, 1968) and anecdotal evidence (Root et al., 1976) predict that postexercise examinees will evidence higher levels of satisfaction with REALTRAIN than preexercise examinees had expected, whereas the reverse will be found for conventional exercises. The rationale underlying these hypotheses is that compared to what soldiers have come to expect from field exercises, REALTRAIN will enhance expectations that a soldier's efforts will result in an effective performance and that such a performance would be recognized by others as combat readiness. In contrast, the command level and conventional features of ARTEP exercises were assumed to result in decreased expectations.

In addition to examining the exercise-specific motivation and satisfaction morale components, this research also assessed the impact of different exercises on general job satisfaction and unit cohesiveness in the Army. In accordance with previous research (Bleda, 1976), any pleasant or unpleasant experience engendered by the exercises was predicted to condition the feelings and perceptions of participants toward their total military experience. Participation in REALTRAIN was expected to influence positively soldiers' evaluations of various facets of their military life, and undergoing conventional ARTEP training was predicted to have a negative effect. Thus, items were included on the morale instrument to measure general military job satisfaction and unit cohesiveness as well as items to assess the motivation and satisfaction specific to the exercises.

METHOD

Design

The overall design of the research was a 2 x 2 x 2 mixed factorial with two between groups factors and one repeated measure factor. The two between factors were the type of combined arms exercise (REALTRAIN or conventional) and the type of combat unit (Armor or Infantry). Half of the members of each participating military unit were chosen randomly and assessed with regard to their morale before the exercises, and the rest were administered the instrument after the session. Means for each such half-unit were computed and used as scores. Thus, the unit of analysis was the specific platoon or company to which respondents were assigned, not the individual soldier. The primary dependent measures consisted of the motivation/satisfaction indexes specific to the exercises and items that referred to the soldier's general military experience.

Sample

Morale was assessed for about 1,200 combat personnel involved in one iteration (5-7 days) of either REALTRAIN (n = 22 platoons) or conventional ARTEP exercises (n = 9 companies). The REALTRAIN units were divided equally between Armor and Infantry platoons, and five Armor and four Infantry companies participated in the ARTEP testing. Preexisting Armor and Infantry units were assigned to either REALTRAIN or the ARTEP by Army administrators but without any known systematic bias. REALTRAIN sessions were held at four different training sites during the fall and winter, and the ARTEP was held at a single location during the following spring (1975-76).

Morale Instrument

The "before" form of the morale instrument was administered when participants arrived in the field; the "after" form was given within 1 or 2 days following the exercises. The only difference between the two forms was the grammatical format of the 15 items that pertained specifically to the exercises. On the "before" form, these items were worded in the future tense, such as, "I expect that the training exercise that I am about to begin will be similar to an actual combat situation." Identical items were presented on the "after" form in the past tense, "I think that the exercises that I have just completed were similar to an actual combat situation." Responses to the "before" items reflected expectations about the nature of and the benefits to be derived from the forthcoming exercises (motivation), and those to the "after" items measured what participants believed they had derived from the session (satisfaction). These exercise-specific items were designed to assess four intuitively different dimensions of motivation/satisfaction, including Combat Conditions, Training Programs, Self Improvement, and Leadership Improvement.

The morale instrument included 35 other items designed to assess five different dimensions of military job satisfaction and unit cohesiveness. These five general morale dimensions had been identified and validated in an earlier study of 1,500 military personnel using nonmetric scaling techniques (Bauer et al., 1976). With regard to item reliability, moderate to high levels of internal consistency had been shown previously for these dimensions (alpha coefficients ranged from .70 to .92). The discriminant validity of these dimensions also had been shown using military personnel who were known to vary in terms of their morale. Specifically, the responses of enlisted men from elite units were more favorable than those from nonelite units, and those from prisoners were least favorable.

The four exercise-specific dimensions of motivation/satisfaction and the five previously identified dimensions of job satisfaction and unit cohesiveness are described more completely in Table 2. All items used to assess these nine morale dimensions were presented as positive statements, such as, "My supervisor is tactically able to perform his combat duties well," except for the negatively phrased Unit Conduct items, such as, "Members of my unit often do poor quality work." Responses to each item could be made along a 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). Only participants who held positions of authority (e.g., squad leader, platoon sergeant, and such) completed the Leadership Improvement items.

RESULTS

A factor analysis verified the four newly and intuitively conceived exercise-specific dimensions and the previously identified dimensions. A principal components factor analysis with varimax rotation provided confirmation of all the morale dimensions shown in Table 2. That is, a 9-factor solution emerged (with eigenvalues exceeding unity) that accounted for 39% of the variance in response to the 50 morale items (collapsed across research conditions). All but 6 of the items had factor loadings of .5 or above, and these 44 items were used to compute a factor score along each dimension for each respondent. Factors scores were computed by totaling each subject's responses to those items that loaded high on a factor. Mean factor scores for units were then computed by summing across unit members who had been selected for the preexercise survey and then dividing by the number of respondents in that unit.

Mean motivation/satisfaction scores for each exercise-specific factor are shown in Figure 1. Separate 2 x 2 x 2 unweighted-means analyses of variance with one repeated measure were performed for each motivation/satisfaction factor score. The unit of analysis in this repeated measure design was not the individual respondent (since each soldier was assessed only once) but rather the specific combat unit to which respondents were assigned. These analyses indicated a significant main effect due to the type of exercise on all motivation/satisfaction factors ($p < .05$ in all cases). That is, units involved in REALTRAIN as compared to conventional ARTEP exercises evidenced higher scores along each of the following dimensions: (a) Combat Conditions (3.93 versus 3.37), (b) Training Programs (3.58 versus 2.67), (c) Self Improvement (4.28 versus 3.17), and (d) Leadership Improvement (4.74 versus 4.25). Table 3 shows an analysis of variance for the Combat Conditions factor ANOVA was performed on scores along each factor.

Table 2

Description of Morale Dimensions

Dimension and factor	Description
EXERCISE-SPECIFIC MOTIVATION/SATISFACTION	
<u>Combat conditions (3 items)</u>	Deals with participant perceptions about the similarity of the exercises to actual combat conditions and the impact of the training on awareness of both the physical dangers and discomforts of combat duty.
<u>Training Programs (2 items)</u>	Pertains to the extent to which participants believe that making the exercise a regular part of their training program would increase their desire and that of others to reenlist.
<u>Self-Improvement (2 items)</u>	Related to respondents' beliefs about the exercise as improving their combat abilities and being worthwhile to them.
<u>Leadership Improvement (6 items)</u>	Reflects leader perceptions of the impact of the exercises on their actions toward subordinates in terms of keeping them informed, explaining what actions are needed and why, accepting responsibility for their subordinate's mistakes, willingness to provide special training, and awareness of subordinate capabilities.
JOB SATISFACTION	
<u>Military Work Role (7 items)</u>	Pertains to soldiers' orientations toward their assigned duties in the Army with regard to enjoyment of daily activities, working conditions, relevance and quality of previous training, importance of Army job, sense of accomplishment from daily duties, and overall satisfaction with military service.

Table 2 (continued)

Description of Morale Dimensions

Dimension and factor	Description
<u>Career Intentions (2 items)</u>	Concerned with soldiers' commitments to military service as an acceptable way of life as reflected in their stated intentions to reenlist and to pursue a career in the Army organization.
<u>Leadership (9 items)</u>	Corresponds to subordinates' judgments of the behaviors evidenced by their immediate superior such as the latter's level of technical competence, willingness to keep subordinates informed, flexibility, acceptance of responsibility, awareness of subordinate's capabilities, and willingness to explain what needs to be done and why it is necessary.
UNIT COHESIVENESS	
<u>Esprit de Corps (7 items)</u>	Reflects the commitment soldiers express toward other unit members in terms of their professional competence, teamwork, helpfulness, cooperativeness, trustworthiness, and likeability.
<u>Unit Conduct (6 items)</u>	Identified with the extent to which each soldier views other unit members as maintaining proper military behavior with regard to needing direct supervision to get the job done right, displaying disorderly conduct off post, doing just enough work to get by, failing to show up on time, and doing poor quality work.

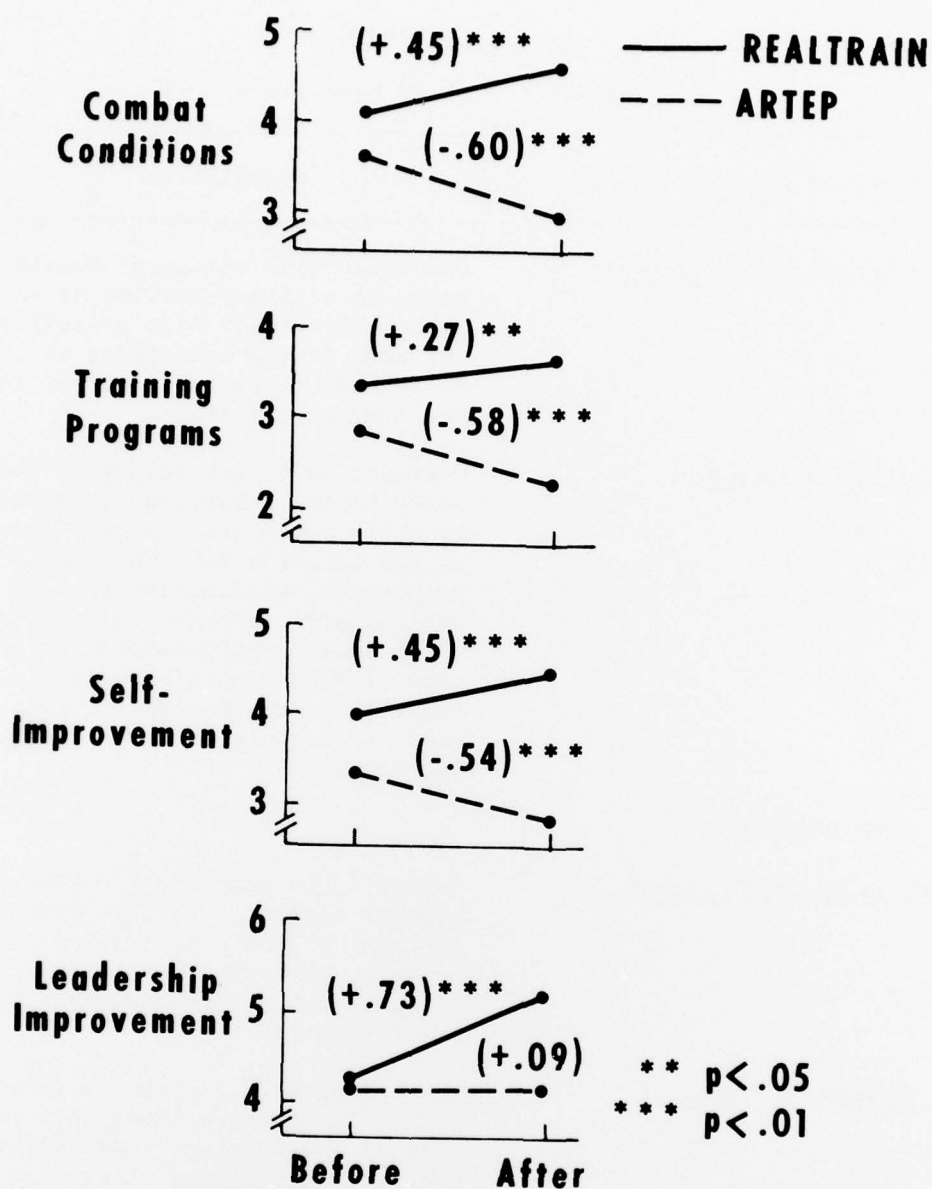


Figure 1. Mean motivation/satisfaction exercise-specific responses before and after combat units' participation in different types of combined arms exercises.

Table 3
Analysis of Variance for Combat Conditions Factor Scores

Source	df	MS	F
Between groups			
Type of exercise (A)	1	13.52	45.83**
Type of combat unit (B)	1	.63	2.13
A x B	1	.33	1.11
Error	27	.30	
Within groups			
Time of morale assessment (C)	1	.07	<1
A x C	1	3.36	26.18**
B x C	1	.00	<1
A x B x C	1	.04	<1
Error	27	.13	

**p < .01.

A significant interaction between the type of exercise and the time of morale assessment (pre- or postexercise) qualified the main effects due to the type of exercise in the following cases: Combat Conditions ($F(1, 27) = 26.18, p < .001$), Training Programs ($F(1, 27) = 15.26, p < .001$), and Self Improvement ($F(1, 27) = 16.12, p < .001$). Subsequent analyses of simple main effects revealed that postexercise REALTRAIN responses were higher than preexercise responses for every factor score ($p < .05$ in all cases). On the other hand, units undergoing conventional ARTEP exercises evidenced lowered postexercise responses in terms of Combat Conditions, Training Programs, and Self Improvement ($p < .05$ in each case). The leaders' evaluations of their own improvement did not differ significantly as a consequence of the conventional ARTEP exercises ($F < 1$). The results indicate that the immediate impact of REALTRAIN was to heighten motivation/satisfaction responses with regard to the exercises while the effect of conventional ARTEP exercises was to depress satisfaction responses.

The mean unit scores for each job-satisfaction dimension are shown in Figure 2. For the scores along each factor a $2 \times 2 \times 2$ unweighted-means analysis of variance was performed. The interaction between type of exercise and pre- or postexercise morale assessment was significant in the case of Military Work Role ($F(1, 27) = 10.89, p < .005$),

marginally significant for Leadership ($F(1, 27) = 3.62, p < .08$), and nonsignificant for Career Intentions ($F(1, 27) = 2.70, p < .05$). Analyses of simple main effects revealed that REALTRAIN heightened satisfaction responses for both Military Work Role ($p < .005$) and Career Intentions ($p < .02$) but not for Leadership ($F < 1$). In contrast, ARTEP units evidenced to a marginally significant extent lower postexercise job-satisfaction responses with regard to Military Work Role ($p < .08$) and Leadership ($p < .07$). (Significance levels of .10 were considered appropriate in these tests because of the very small number of units ($n = 9$ companies) analyzed.)

Mean unit scores for the Esprit de Corps and Unit Conduct factors are given in Figure 3. Unweighted-means analyses of variance revealed that the interaction between type of exercise and pre- or postexercise morale assessment was significant for Esprit de Corps responses ($F(1, 27) = 4.52, p < .05$) but nonsignificant for Unit Conduct ratings ($p < .05$). Subsequent analyses indicated no difference between before and after measures of Esprit de Corps for REALTRAIN units ($F < 1$) but revealed that participation in conventional ARTEP exercises lowered postexercise scores ($F(1, 7) = 15.68, p < .01$). For Unit Conduct responses, only a main effect due to the exercise type was obtained ($F(1, 27) = 4.89, p < .05$), with higher scores for ARTEP as compared to REALTRAIN units (3.38 versus 3.06). Thus, REALTRAIN did not influence unit cohesiveness, and conventional ARTEP exercises lowered feelings of Esprit de Corps and heightened Unit Conduct.

CONCLUSIONS AND DISCUSSION

The findings pertaining to the exercise-specific morale components provided strong support for the hypotheses that REALTRAIN acts to boost morale, and conventional ARTEP exercises depress it. For example, REALTRAIN was evaluated postexercise as more closely approximating actual combat conditions than preexercise examinees had expected, whereas the reverse was found for units undergoing conventional ARTEP exercises. The greater perceived realism of REALTRAIN presumably resulted from its free-play nature and the objective assessment of weapons' effects. Conversely, ARTEP's prearranged scenarios and subjective determination of casualties detracted from even the limited degree of realism that had been anticipated. The repetitive nature of REALTRAIN and the lessons derived via the After-Action Reviews probably resulted in soldiers perceiving their combat readiness and leadership abilities as being improved more than they had expected. The perceived impact on reenlistment intentions of making REALTRAIN a regular part of training programs was higher than expected for REALTRAIN participants and lower than expected for ARTEP units. The motivation to reenlist, contingent on regularly undergoing one type of exercise, presumably was a direct function of the favorableness of the experience engendered by the exercise type.

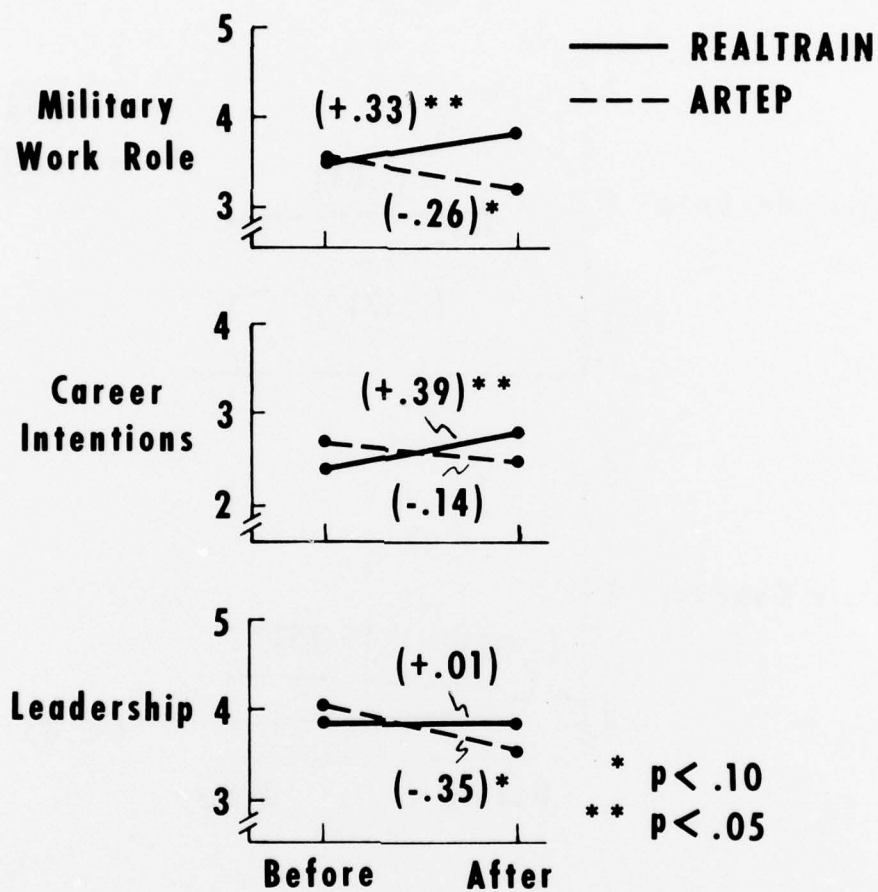


Figure 2. Mean job-satisfaction responses before and after combat units' participation in different types of combined arms exercises.

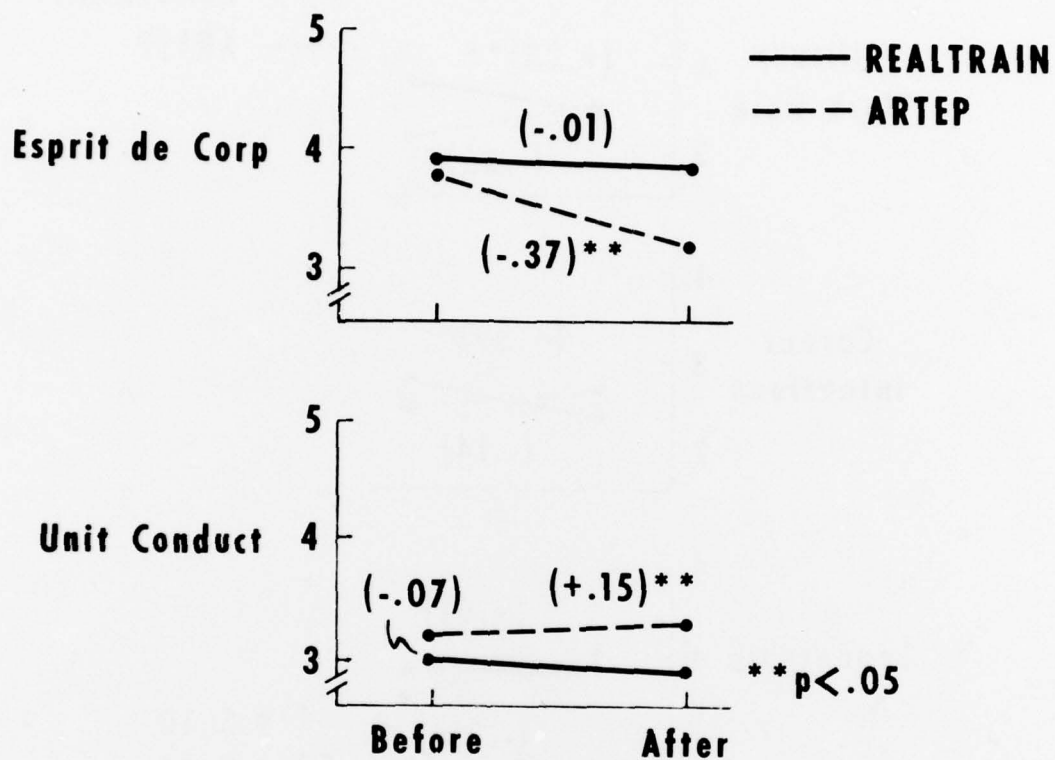


Figure 3. Mean unit-cohesiveness responses before and after combat units' participation in different types of combined arms exercises.

Even before the exercises, combat units appeared to hold higher expectations regarding the essential quality and benefits to be derived from participation in REALTRAIN as compared to the conventional ARTEP exercises. These higher prior expectations for REALTRAIN, along all of the exercise-specific dimensions of morale, most likely were related to the images of these two field-exercise types held by military personnel in combat units. The postexercise satisfaction responses indicated that REALTRAIN more than fulfilled its heightened expectations; the conventional ARTEP exercises failed to meet even its relatively low expectations.

The pattern of findings for the three military job-satisfaction dimensions paralleled to some extent the exercise-specific pattern, although job-satisfaction effects were not as pronounced as exercise-specific effects. In particular, REALTRAIN tended to heighten satisfaction with one's Military Work Role and Career Intentions; the conventional exercises tended to depress satisfaction with Military Work Role and evaluations of Leadership. The relatively smaller impact of the two exercise types on military job-satisfaction responses as compared to the exercise-specific responses probably stems from the different frame of reference induced by each set of dimensions. In contrast to the exercise-specific items, the job-satisfaction items measured respondents' general feelings about their military experiences, including the exercises. The results for job satisfaction, nonetheless, indicate that even 1-week sessions of either exercise type immediately affect how soldiers feel about and perceive their life in the Army.

REALTRAIN's favorable impact on satisfaction with Military Work Role and Career Intentions may be due to the opportunity this exercise affords combat units to apply previous training under realistic conditions. Participants probably derived feelings of achievement, competence, and responsibility from being allowed to perform their designated duties, and these positive feelings generalized to their perceptions of military life. For ARTEP participants, postexercise satisfaction with Military Work Role and evaluations of leader attributes were less favorable than preexercise measures. Because the ARTEP exercises were conducted at the battalion level, information loss and distortion in the communication or orders to lower levels of command were relatively highly probable. Moreover, the delay in assignments reaching these lower levels may have made the assignments appear out of synchronization with changing conditions. Such communication-related problems may have adversely affected soldier perceptions of their immediate superiors.

The conventional ARTEP exercises had mixed impacts on unit cohesiveness in that they lowered feelings of Esprit de Corps and heightened perceptions of Unit Conduct. The unfavorable influence of these exercises on professional commitment among unit members (Esprit de Corps) may have resulted from the extended periods of inactivity that the line troops experienced. Headquarters staff and support personnel typically

are active throughout the entire ARTEP testing phase, but line troops tend to remain idle or engage in menial tasks during much of the exercise. The perceived conduct of unit members may have improved because all participants were kept on 24-hour duty assignment and all personnel were under the constant surveillance of evaluators during the ARTEP. In contrast, the REALTRAIN exercises were conducted during the normal workday approximating 8 hours of duty.

Although the immediate impact of the conventional battalion-level ARTEP exercises was to depress participant motivation and satisfaction along certain dimensions, it cannot be concluded that the testing of lower echelons would have the same adverse effects. Very different results might have been found for platoon as compared to battalion-level ARTEP testing, due to the higher probability that performers would remain active throughout the entire session. Also, the psychological fidelity imposed by the ARTEP testing may vary according to the role played by the performer. While the line troops may not have viewed the circumstances surrounding the exercises as approximating actual combat conditions, the necessary requisites for realism may have existed for headquarters staff and support elements. Thus, the extent to which the present findings are representative of all personnel involved in the exercises, or merely of certain personnel, is unknown.

At least two recommendations can be made to Army policymakers with regard to the implementation of combined arms exercises. First, REALTRAIN instead of conventional training could be made a formal part of the ARTEP structure for testing squads and platoons. The rates of casualties inflicted and sustained would give evaluators a relatively objective basis for determining the combat readiness of tested units. Second, in cases where it is uneconomical or not organizationally feasible to implement the complete REALTRAIN program, one or more of its essential features (e.g., the objective assessment of weapons' effects) could be incorporated into ARTEP testing. Such improvements in the realism of combined arms ARTEP testing might enhance the psychological fidelity of the combat environment for participants, especially for line troops.

REFERENCES

- Bauer, R. G., Stout, R. L., & Holz, R. F. Developing a Conceptual and Predictive Model of Discipline in the U.S. Army (Research Problem Review 76-5). Alexandria, Va.: U.S. Army Research Institute, September 1976.
- Bleda, P. R. Conditioning and Discrimination of Affect and Attraction. Journal of Personality and Social Psychology, 1976, 34(6), 1106-1113.
- Campbell, J. P., & Pritchard, R. D. Motivation Theory in Industrial and Organizational Psychology. In M. D. Dunnette (Ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally, 1975.
- Holz, R. F., & Segal, D. R. The Impact of a Combat Training System on Personnel Resources in the U.S. Army. (Paper presented at the meeting of the 2d NATO Special Panel Program on Systems Science Conference.) Brussels, Belgium; September 1975.
- Motowidlo, S. J., & Borman, W. C. Behaviorally Anchored Scales for Measuring Morale in Military Units. Journal of Applied Psychology, 1977, 62(2), 177-183.
- Porter, W. L., & Lawler, E. E. Managerial Attitudes and Performance. Homewood, Ill.: Dorsey, Irwin, 1968.
- Root, R. T., Epstein, K. I., Steinheiser, F. H., Hayes, J. F., Wood, S. E., Sulzen, R. H., Burgess, G. G., Mirabella, A., Erwin, D. E., & Johnson, E., III. Initial Validation of REALTRAIN with Army Combat Units in Europe (ARI Research Report 1191). Alexandria, Va.: U.S. Army Research Institute, October 1976. (NTIS No. AD A034 610)
- Shils, E. A., & Janowitz, M. Cohesion and Disintegration of the Wehrmacht in World War II. Public Opinion Quarterly, 1948, 12, 280-315.

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