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ABSTRACT

The major change from an industrial to an information-based society has far-reaching implications for the profession of arms. This shift challenges many assumptions about soldier development and requires an aggressive response to retain the U.S. Army's edge despite an expanding mission and a shrinking budget. This article explores some of the critical shortfalls of the traditional military training model. It presents a brief history of Army training models; introduces the principles of human performance improvement; defines key performance improvement terms; discusses the benefits of human performance technology; and provides guidance for field commanders and institutional trainers during performance improvement transition, including several questions that can be used to evaluate whether it is worthwhile for a unit or organization to make that transition from training to human performance improvement. An overview of selected information and training sources is also provided. (AEF)

Training or Performance Improvement?

By: James B. Ellsworth

Training or Performance Improvement?

James B. Ellsworth

In no other profession are the penalties for employing untrained personnel so appalling or so irrevocable as in the Army.[1]

— General Carl E. Vuono

EVEN OUR ADVERSARIES recognize the US Army's training excellence as a key combat multiplier. In 1945, following Germany's surrender, Field Marshal William Keitel, Chief of the German General Staff, remarked, "We had everything calculated perfectly except the speed with which America was able to train its people."[2]

Neither past US performance nor even current paradigms are necessarily relevant. The major change from an industrial to an information-based society has far-reaching implications for the profession of arms.[3] This shift challenges many assumptions about soldier development and requires an aggressive response to retain the Army's edge despite an expanding mission and a shrinking budget.

This article explores some of the critical shortfalls of the traditional training model. It introduces the principles of "human performance improvement," presents a brief history, defines a few key terms, provides guidance for field commanders and institutional trainers during the performance improvement transition, and gives an overview of selected information and training sources.

Training Dimensions

As the Army transforms, it must guard against wholesale change for change's sake. Since historic training models have been so successful, leaders may be understandably reluctant to tamper with them. A few reminders about this past success may show why change is truly necessary. The current models worked when the enemy remained unchanged annually from year to year. However, in today's "threat *du jour*" environment, adversaries can appear overnight—our mortal enemy in one situation can be our closest ally in another (and vice versa).

As professional educators and leaders who excel at training, Army leaders are predisposed to reach for training to solve every performance shortfall. . . . In* Analyzing Performance Problems, *authors Robert Mager and Peter Pipe explain that training solutions only work when people do not know how to perform to standard—and sometimes are not the best answer even then.

Current models were effective when the Army could just recruit more soldiers or work longer days to get more done. Military downsizing and the availability of civilian jobs mean today's strategies must be based on working smarter with personnel and resources, not harder. Current models also worked when only leaders and scientists had to "think outside the box." However, on today's asymmetrical battlefield, soldiers closest to the action must make the creative decisions to prevent being outmaneuvered by a more agile opponent. When Albert Einstein remarked that "the world we have created today has problems which cannot be solved by thinking the way we thought when we created them," he described today's operational requirements.

Today's operational problems are often multidimensional, and training can address only a few of their causes. What is often called a training problem is really identifying a performance discrepancy—an undesired difference between ability and objective. More training is not always the answer.

Famed psychologist Abraham Maslow observed many years ago that "If the only tool you have is a hammer, all problems begin to look like nails." As professional educators and leaders who excel at training, Army leaders automatically reach for training to solve every performance shortfall. Ironically, the Army realized this mistake over a decade ago,

but many of these lessons seemingly escaped as key personnel rotated or retired. In *Analyzing Performance Problems*, authors Robert Mager and Peter Pipe explain that training solutions only work when people do not know how to perform to standard—and sometimes are not the best answer even then.[4]

Performance improvement is a systemic and replicable approach to applying past lessons. It is not a "touchy-feely" method developed through unrealistically controlled experiments in an insulated laboratory setting. Rather, it is a rigorous model based on scientifically derived theory and successful practices in government, business and education.

In some places, these notions took deeper root. The Army identifies six different parts of a performance system that can be changed to address a discrepancy: doctrine, training, leadership, organization, materiel and soldier effectiveness—DTLOMS. When success is defined as accomplishment of an organization's mission, training is only one of a range of dimensions to consider. Together, these dimensions form a human performance system that the best training in the world will not help if the other dimensions are not sufficiently solid. As one human performance expert put it, "Pit a good [well-trained] employee against a bad system and the system will win most every time."[5]

A Performance Improvement Primer

To optimize the system as a whole, performance improvement "draws from any discipline that has prescriptive power in solving any human performance problem."[6] It is a systemic and replicable approach to applying past lessons. It is not a "touchy-feely" method developed through unrealistically controlled experiments in an insulated laboratory setting. Rather, it is a rigorous model based on scientifically derived theory and successful practices in government, business and education.

Performance improvement helps quantify and measure performance discrepancies and the cost effectiveness of proposed solutions. It begins by measuring current performance, then identifies and measures exemplary performance. Strategies for "getting from here to there" can include interventions of any type—separate or combined—that would close the gap (for example, training plus changes to doctrine).

The most cost-effective package or solution set is then analyzed to ensure the cost of closing the gap does not exceed the benefit. The focus stays on comparing costs with actual performance and achievement, rather than "tasks trained" or "seat time," which may or may not result in improved performance.

The power of performance improvement tools is evident from its roots in a range of disciplines. The model owes its earliest roots to behavioral psychologist B.F. Skinner, and grew through commercial application and modification by Robert Mager and Joe Harless. Figure 1 illustrates the refinement that took place at this stage. Note the beginnings of the Army's own systems approach to training in these models, especially Harless.

Later, Thomas Gilbert provided measurability in the form of the potential for improving performance, which is the value of exemplary performance divided by the value of current performance.[7] From there, the pioneering theories were incorporated into the disciplines of management science and organizational or human resource development and have proven effective in both the public and private sectors.

Unfortunately, the Army's application of performance improvement principles has remained largely frozen at these early levels of successful application. In the meantime, not only has the Army's operating environment changed; the world has changed. The future security environment will be more complex, and sources of conflict and tension are increasing.[8] Educational technology has changed, with some interventions such as training and materiel beginning to overlap and combine into new interventions such as embedded trainers and electronic-performance support systems. These changes and their parallels in civilian industry have driven performance improvement to evolve and integrate lessons more effectively to find and fix the root causes of performance discrepancies.

Key Performance Improvement Terms

Like any field of practice, performance improvement has a specialized vocabulary. The phrase human performance technology (HPT) is often used to describe the model. Technology here does not

Mager (1968)	Harless (1970)
Where are going?	Analysis of Organizational Goals
How shall we get there?	Design, Develop and Implement Interventions
How will we know when we have arrived?	Evaluate Effectiveness

Figure 1: Shared Roots: Performance Improvement and the Systems Approach to Training

refer to machines, but rather to "the application of science . . . to the development of . . . procedures in order to enhance or improve human conditions, or at least to improve human efficiency in some respect."[9] Thus, HPT simply refers to the process of employing the performance improvement model.

Performance analysis is the engine driving human performance technology, the process of calculating the performance gap by comparing the desired level of performance with the actual level of performance. Without a sound performance analysis, it is impossible to measure the effect of efforts to improve; in fact, there is no basis for saying whether any improvement has occurred—or even for confidence that the situation has not worsened.

Once the performance gap is identified and measured, the detective work begins. Cause analysis systematically examines factors and relationships among factors underlying a performance gap to identify the root cause of a discrepancy. There are many possible reasons why performance is not at the desired level. The HPT model suggests possible deficiencies in these areas:

- Consequences, incentives or rewards.
- Data, information or feedback.
- Supportive work environment, resources or tools.
- Individual capacity (ability).
- Motives or expectations.
- Skills or knowledge (this is the only shortfall generally responsive to a training solution).[10]

Matching possible solutions to a particular identified cause is known as intervention selection and design. Matching a training solution to a performance gap caused by lack of skills or knowledge is a simple example of this process. In actual practice, intervention selection and design involves assembling an integrated, multidimensional intervention package targeting one or more root causes of the performance gap. Such a package could include any combination of interventions such as appraisal systems, compensation, job aids, process redesign, mentoring and DTLOMS.

As shown in Figure 2, these concepts form the heart of the HPT model—the portion with which Army

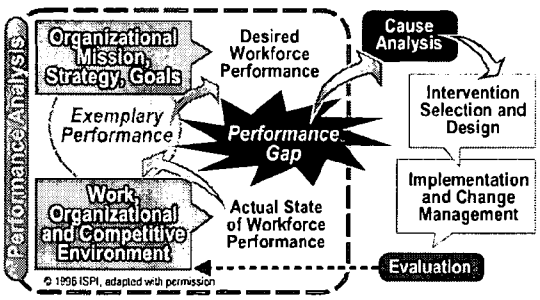

Figure 2. The HPT Model

Major General Paul Funk, 3d Armored Division commander, shows his division's *Desert Storm* movements during a VII Corps AAR, March 1991.

US Army

Without a sound performance analysis, it is impossible to measure the effect of efforts to improve; in fact, there is no basis for saying whether any improvement has occurred—or even for confidence that the situation has not worsened. Once the performance gap is identified and measured, the detective work begins.

leaders and trainers are least likely to be familiar.

The last two processes—*implementation* and *evaluation*—should already be familiar, although the importance of these steps is worthy of elaboration.

Implementation in the Army has tended to be a mechanical process of enforcement: putting a selected solution into practice and moving everything else out of the way. Recent experience, however, implies that implementation must include the management of change—systematic attention to ensure that the selected interventions and the existing system into which they are introduced complement rather than conflict with one another.

Likewise, *evaluation* under the Army's systems approach to training often is interpreted as an assessment of whether the training had effectively produced learning, with a positive result interpreted as effective training. By contrast, under performance improvement *evaluation* determines whether the training (or other interventions) actually improved job performance. Clearly, evaluation depends on the

initial performance analysis: if the performance gap was never accurately measured, it is impossible to assess the interventions' effect. Performance analysis equates to aiming fire, and evaluation to spotting and adjusting it. Any interventions (including training) without effective analysis and evaluation are as effective as arbitrary munitions fired in random directions.

Exemplary performers are not geniuses or athletes with inborn abilities no one else has. They are not workaholics who sacrifice sleep and family life to spend 60 or more hours per week on the job. Exemplary performers are normal soldiers and civilians who have hit upon best practices—which can be duplicated by others—that enable them to sustain exemplary performance levels.

Performance analysis may well identify a portion of the work force consistently performing above the level originally desired. Gilbert noted that this level of exemplary performance should be used to adjust the level of desired performance; a visual representation of this phenomenon has been added to Figure 2 for clarity.[11]

Exemplary performers are not necessarily the best performers in a particular position, because exemplary performers must be examples whose performance others are capable of emulating.[12]

Consider Sergeant Alvin York or General George S. Patton: few would dispute that they are among the finest soldiers and military leaders ever to serve in the US Army. Yet it is equally clear that not all soldiers and military leaders can perform as they did: each had a rare gift for the profession.

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Benefits of HPT

First, HPT makes it easier to quantify and measure the capacity for performance improvement and monitor progress toward that goal. Too often, in the past, the Army has funded expensive training programs without clearly identifying the expected gain or how — and in what terms — that gain would be measured. It is one thing to say that a course trains a list of critical tasks; it is quite another to say that a program (perhaps including a course, a modernized system and a job aid) enables soldiers to perform in battle. HPT enables tools to make the latter claim.

Using these measurements, HPT helps guard against hasty decisions, glitzy panaceas and ineffective applications of emerging technologies. When the Army first began experimenting with the Internet as a training medium, much time and money was spent merely digitizing lesson plans, student handouts and presentation slides—providing countless hours of training but little performance improvement. HPT reduces this risk by directly linking program and materiel costs to a demonstrable increase in productivity or competence.

Because the model is explicitly one of performance improvement, it helps focus on organizational objectives. Each possible intervention is weighed against its contribution to mission accomplishment. Success—and continued funding—is directly linked to measurable improvements (reductions in the performance gap) that an intervention achieves—not just to graduation rates, contact hours or seats filled in a classroom.

This focus helps put organizational learning systems on a more equal footing with other competing priorities, because they can now demonstrate a return on investment. An organization effectively using human performance technology has the data to demonstrate:

- A sound rationale behind a given level of desired performance.
- The degree of improvement necessary to reach that performance level.
- The increase in performance caused by interventions during a particular time period.
- The reduction in a performance gap "bought" by investment in a given intervention.
- The causal link between an observed improvement in performance and dollars spent for an intervention.

For more information see the following:

Robert F. Mager and Peter Pipe, *Analyzing Performance Problems*, Second Edition (Belmont, CA: Pitman Learning, Inc., 1984).

Handbook of Human Performance Technology: A Comprehensive Guide for Analyzing and Solving Performance Problems in Organizations, eds. H. Stolovitch and E. Keeps (San Francisco, CA: Jossey-Bass, 1992).

The Resource Guide to Performance Improvement Interventions, D. Langdon, K. Whiteside and M. McKenna. (San Francisco, CA: Jossey-Bass).

Performance Improvement Pathfinders: Models for Organizational Learning Systems, eds. P. Dean and D. Ripley. (Washington, DC: International Society for Performance Improvement, 1997).

Adopting HPT is a significant cultural change, and making the transition means committing to a different road than the Army has been traveling. Although training is a critical part of Army operations, if quality training does not improve battlefield performance, can leaders claim to have succeeded in this responsibility?

Such data present a more compelling argument for funding and support of organizational learning systems than "You Really Oughta Wanna!"[13]

To Change or Not to Change

Is it worthwhile for your unit or organization to make the transition from training to human performance improvement? This section may help answer that question. As you read the questions in each paragraph, ask yourself whether you would be comfortable with your organization's answers today—or if current practice even makes it possible to find and document answers.

First, what is the approximate cost of less-than-desired performance in your organization, and by how much did your efforts in the past 12 months reduce that cost? How much is less-than-exemplary performance costing (for instance, in training ammunition, in equipment downtime and repairs, and in soldier retraining)—and how much have you reduced that cost since last year?

Second, would you bet your next appraisal that your organization's training programs are the most effective means of improving your soldiers' on-the-job performance? Can you be certain that one or more other solutions—instead of or in addition to training—would not be more cost effective?

Third, in the three months immediately following instruction, how effective were the soldiers attending your training at doing what you trained them to do? What is the added value of your training—that is, do soldiers leave ready to do their jobs, or do they still require extensive coaching by their peers and leaders?

Fourth, approximately how many training hours did your organization provide last year? How many soldiers did you train and how many instructors did you use? This is a trick question: it requires the type of information Army leaders are accustomed to providing—but which lacks relevance to accomplishing the mission.

Finally, what is the average return on investment for your training dollar? What did you buy with the money you spent on training? How many weeks of on-the-job training would it take to achieve the same performance gains? What would you have to pay for job aids or embedded training that might replace or augment portions of classroom or field instruction? How much would the mission suffer if your personnel simply could not do what you teach them?

Army organizations would likely fare much alike on this quiz. Adopting HPT is a significant cultural change, and making the transition means committing to a different road than the Army has been traveling. Although training is a critical part of Army operations, if quality training does not improve battlefield performance, can leaders claim to have succeeded in this responsibility?

Currently, most Army feedback systems can only monitor how effectively instruction passes information.

When the Army first began experimenting with the Internet as a training medium, much time and money was spent merely digitizing lesson plans, student handouts and presentation slides—providing countless hours of training but little performance improvement. HPT reduces this risk by directly linking program and materiel costs to a demonstrable increase in productivity or competence.

These systems do not address what soldiers are learning about surviving and winning in combat, whether the training results in better performance or whether more skills and knowledge—as opposed to modernized equipment or refined doctrine, for example—provide the most cost-effective path to mission accomplishment. If the questions highlighted these shortfalls, your organization could benefit by transitioning from training to HPT.

If, on the other hand, your organization would be able to answer most of those questions without a lot of difficulty, you are probably already practicing many of HPT's most important principles. However, unless your personnel are already formally trained in HPT, other critical concepts could help you fine-tune your organization's performance improvement practice. HPT works as a system—which means principles and parts of the model reinforce one another. If HPT appears partially implemented in your organization, you are not getting the full benefit from your investment.

HPT and Transformation

Human performance improvement shares a historical lineage with the Army's systems approach to training but has continued to evolve with the changing world while our traditional training models have stagnated. This evolution has often been paralleled in the thinking of senior Army leaders discussing the future Army's organizational learning needs. As a colonel, Lieutenant General L.D. Holder lamented the detachment of our learning systems from operational requirements. His strategy for "Educating and Training for Theater Warfare" would relink the two and could have been written by a performance improvement consultant.[14]

More recently, Lieutenant General Montgomery Meigs and Colonel Edward Fitzgerald introduced the "University After Next" with a narrative illustration focused entirely on the need to train for performance.[15]

The organizational learning systems of today's Army are at a crossroads: blind adherence to the traditional training model carries a heavy opportunity cost, as instruction divorced from its ultimate purpose drifts more distant from the combat commander's needs. At the same time, an opportunity exists to combine forces with the academic and business communities, mixing their HPT knowledge and experience with the Army's understanding of the modern battlefield to realize the vision Meigs and Fitzgerald propose: "a synthetic theater of learning that will be completely interoperable with the synthetic theater of war" and that will ultimately enable the operational commander "to significantly accelerate the conduct of operations."[16] ***MR***

NOTES

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