What Is Human Performance Technology?

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Human Performance Technology (HPT) is a field of practice that has evolved largely as a result of the experience, reflection, and conceptualization of professional practitioners striving to improve human performance in the workplace. It is a relatively new field that has emerged from the coalescing of principles derived from the carefully documented practice of thoughtful behavioral and cognitive psychologists, instructional technologists, training designers, organizational developers, and various human resource specialists. HPT possesses a base of research and theory but, as a rapidly evolving professional field, its practice frequently outpaces its research and theoretical foundations.

The major purpose of this chapter is to introduce HPT as a significant applied field whose aim is the achievement of valued human performance in the workplace. It presents the field as an evolving one actively seeking to define itself. It also positions HPT as a field with growing international impact. The chapter is divided into six sections. The first presents HPT as a term, exploring the meanings of the words that serve to identify it. The second examines HPT more epistemologically, ultimately focusing on it as a concept with a specific and unique set of critical attributes. The third explores the relevance of HPT for persons concerned with organizational effectiveness and productivity improvement around the world. The fourth presents a human performance system model and lays out key elements of human performance systems within organizational contexts. The fifth describes an operational-procedural model for engineering effective performance. The sixth raises some questions and concerns
Generally, HPT is referred to and spoken of without the word human. It is understood that the focus of this field of application is on human performers in organizational and work settings, although recently there have been successful efforts to apply HPT principles to societal issues. Human is emphasized here, and throughout the handbook, to clearly underscore this focus. For the most part, HP technologists deal with the performance of people operating within results-oriented systems.

With the world firmly embarked upon the knowledge era, there is a growing emphasis on human capital and its essential role in contributing to organizational success. The pioneer work performed by Nobel laureates Schultz (1981) and Becker (1993) has laid the foundation for other writers, such as Crawford (1991), Stewart (1997), and Edvinsson and Malone (1997), to demonstrate that it is people, with their ability to learn, who offer the greatest potential for organizational success. The value of human performance has been empirically demonstrated to yield higher rates of return than physical capital (see, for example, Lickert and Pyle, 1971; Stewart, 1994; Bradley, 1996). HPT, as a field, focuses on maximizing the valued achievements of people within work settings.

The word performance is one that tends to disquiet persons who first encounter it in the serious setting of the workplace. At first glance, it appears to suggest something theatrical rather than substantive, and yet performance is an appropriate term for this technology. The word also denotes a quantified result or a set of obtained results, just as it refers to the accomplishment, execution, or carrying out of anything ordered or undertaken, to something performed or done, to a deed, achievement, or exploit, and to the execution or accomplishment of work.

Nickols (1977, p. 14) defines performance as “the outcomes of behavior. Behavior is individual activity whereas the outcomes of behavior are the ways in which the behaving individual’s environment is somehow different as a result of his or her behavior.” Gilbert (1974), in the same vein, equates performance with “accomplishments” that we value. We may even link the term to Ryle’s (1949) use of the term achievements, which he employs to describe the effects of behavior related to the term performance. Outcomes, accomplishments valued by the system, achievements—these are the concerns of HPT.
Recently, the word *performance*, linked with the word *improvement*, has gained considerable attention and respectability. *Performance improvement* has become a catchphrase connoting increased productivity, as well as greater effectiveness and efficiency from work groups. Various recent books (for example, Robinson and Robinson, 1995; Dean and Ripley, 1997; Kaufman, Thiagarajan, and MacGillis, 1997; Fuller, 1997) have made performance improvement their central focus. Improved performance is the goal, but HPT offers a scientific and systematic means for its successful attainment.

The word *technology* also often rings discordant in the ears of human resource professionals, for whom the term conjures up mechanistic images. But technology is not simply machinery; in its origins, it is essentially referred to as the scientific study of practical matters. Recently, the term has been used increasingly to denote the application of procedures derived from scientific research and professional experience to the solution of practical problems (Clark and Sugrue, 1990; Hawkridge, 1976; Stolovitch and Maurice, 1998). Joined with the word *performance* and introduced into the workplace, it suggests objectivity and systematic procedure. It implies the application of what is known about human and organizational behavior to the enhancement of accomplishments, economically and effectively, in ways that are valued within the work setting. Thus HPT is a field of endeavor that seeks to bring about changes to a system, and in such a way that the system is improved in terms of the achievements it values.

**THE ORIGINS OF HPT**

HPT is one of the many offspring of general systems theory as applied to organizations. It conceives of a system as “a complex grouping of human beings and machines for which there is an overall objective” (Checkland, 1972, p. 91). HP technologists take a systemic (total system) approach to performance analysis and change, as opposed to making piecemeal interventions. HP technologists adopt a holistic viewpoint with respect to performance problems. This means that they examine any given problem (defined as the gap between desired and actual states) within the broader context of the subsystem in which it is situated, within other interacting subsystems, and, ultimately, within the overall system where it occurs. This is not to suggest that, for every problem, HP technologists endlessly examine all systems, in an exercise that lasts forever. It does mean, however, that each performance problem is studied in relation to the more global aims of the setting within which it is identified. Study will extend to settings beyond the immediate site of a problem’s occurrence if performance in these other settings is (or eventually will be) significantly affected by the problem or by its solution.
Although HPT is concerned with systems, it is not generally conceived of as applying to all systems. It is a technology that has application to results-driven, productivity-oriented systems (as opposed, for example, to pure social systems). This makes HPT particularly valuable to business and industry, where organizational purposes and goals are generally clearly defined. HPT need not be limited to the workplace, however. At recent conferences of the International Society for Performance Improvement (ISPI), a number of sessions have focused on HPT in the community. Roy (1998), for example, in a research study, used HPT to improve the quality of life of chronically ill elderly persons while decreasing their medical emergency and rehospitalization rates. HPT has also been applied to such social issues as workplace equity (Stolovitch, 1995). In summary, HPT is applicable to all systems in which improved performance is sought (Dean and Ripley, 1997).

HPT also has roots in behaviorism and is often seen as an offshoot of the programmed instruction movement. Ainsworth (1979, p. 3) has critically suggested that “what theory does propel performance technology is still closely allied to programmed instruction theory.” HPT is concerned with measurable performance and the structuring of elements within the system to improve performance. The HP technologist must identify and analyze stimuli within the system that may affect performance, responses that are emitted, and the consequences of those responses (rewards and punishments) in order to uncover root causes of performance inadequacy. Once this is done, he or she can go on to define observable and measurable performance objectives. According to Ainsworth (p. 5), “A cornerstone of performance technology is outcome signification, discovering valid, useful performance objectives and stating them in terms that are easily understood.” Suitable interventions are designed to effect change, and these are monitored and modified until the system attains the required level of measurable performance. (In Chapter Four of this volume, Dale M. Brethower discusses behaviorism’s contributions to HPT at length.)

More recently, the cognitive sciences have come to have a strong influence on HPT. Work during the Industrial Age was largely manual; the current Information Age demands more mental tasks and activities from workers. If work in the twenty-first century will be primarily knowledge generation, and if knowledge processing is a mental task, then HPT must become increasingly attuned to cognitive operations and enriched by findings from the biological and neural sciences.

In the motivational arena, the trend in research is away from a focus on external rewards. Research now centers on the internal beliefs and expectations of individuals and groups with respect to external events and rewards (Solso, 1995): flattened organizations encourage the empowerment of individuals and work groups, and empowerment in turn implies a need to understand how people perceive their environment and make choices. Similarly, HPT in the
past was mostly concerned with external events; today it is equally interested in the internal consequences of those events. Research evidence suggests that examination of both provides HPT with more powerful means of influencing human performance. Thus, although HPT's roots extend deep into behaviorist soil, they are currently nourished by the cognitive sciences. (See Chapter Five, by Richard E. Clark.)

An emerging influence on HPT is the field of neuroscience. Along with discoveries in the cognitive sciences, neuroscientific discoveries about humans' physiological handling of information, and about how they store and retrieve it, offer insights hidden until now from professionals seeking to influence people's performance. Alkon (1992) and other neuroscientists have delved into how memory is actually formed and what it takes to alter deeply entrenched behavior. Discoveries about brain chemistry, information-load limitations, and memory facilitators and inhibitors are just some of those that have implications for how HPT practitioners can set performance expectations and engineer change.

Economics, particularly those aspects dealing with human and intellectual capital, is also becoming a major contributory foundation of HPT. Emergence of the awareness that human capital is the key commodity for organizational (and even national) success (see, for example, Becker, 1993; Crawford, 1991), has stimulated the demand to find ways of "refining the value extraction of idle intellectual property" (Edvinsson and Malone, 1997, p. 18). Skandia, the largest insurance and financial services company in Scandinavia, has pioneered the effort to measure and report the value of corporate intellectual capital and has done so in ways that speak credibly to financial experts and shareholders. Skandia's success has attracted worldwide attention and laid a foundation from which HPT specialists can demonstrate the value-added features of human accomplishment. Stolovitch and Maurice (1998), for example, have built on the work at Skandia and created a model for calculating return on investment in training and performance. This work has resulted in the ability to report increases in the value of human capital. Moreover, Phillips (1997) has produced a comprehensive set of tools for calculating financial return on investment in programs for training and performance improvement. As further refining work is done, the relationships between HPT and economic theory and practice will naturally be enhanced.

HPT also carries with it a number of underlying assumptions. Well articulated by Geis (1986), they remain largely true today. What follows is an adaptation and updating of key points noted by Geis:

1. Human performance follows specific laws and can often be predicted and controlled.

2. Knowledge of human behavior is limited, and so HPT must rely on practical experience as well as scientific research.
3. HPT draws from many research bases while generating its own.

4. HPT is the product of a number of knowledge sources: cybernetics, behavioral psychology, communications theory, information theory, systems theory, management science, and, more recently, the cognitive sciences and neuroscience.

5. HPT is neither committed to any particular delivery system nor confined to any specific population and subject matter area. It can address any human performance, but it is most commonly applied within organizational, work, and social improvement settings.

6. HPT is empirical. It requires systematic verification of the results of both its analysis and intervention efforts.

7. HPT is evolving. Based on guiding principles, it nevertheless allows enormous scope for innovation and creativity.

8. Although HPT cannot yet pretend to have generated a firm theoretical foundation of its own, the theory- and experience-based principles that guide it are molded by empirical data that have accumulated as a result of documented, systematic practice. In many ways, HPT shares attributes with other applied fields (for example, management, organizational development, medicine, and psychiatry).

A number of authors have attempted to define HPT. Some have emphasized process and methods: "Human performance technology is a set of methods and processes for solving problems or realizing opportunities related to the performance of people. It may be applied to individuals, small groups, or large organizations" (National Society for Performance and Instruction, cited in Rosenberg, 1990, p. 46). For Benefit and Tate (1990), "[Human] Performance Technology is the systematic process of identifying opportunities for performance improvement, setting performance standards, identifying performance improvement strategies, performing cost/benefit analysis, selecting performance improvement strategies, ensuring integration with existing systems, evaluating the effectiveness of performance improvement strategies, [and] monitoring performance improvement strategies."

For Jacobs (1988, p. 67), "Human performance technology represents the use of the systems approach in a number of different forms, depending upon the problem of interest and professional activity required."

Other authors have focused on end results: "The purpose of [human] performance [technology] is to increase human capital, which can be defined as the product of time and opportunity...technology is an orderly and sensible set of procedures for converting potential into capital" (Gilbert, 1996, pp. 11-12). For Harless (cited in Geis, 1986, p. 1), "Human performance technology is the process of selection, analysis, design, development, implementation, and evalu-
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Educating organizations to most cost effectively influence human behavior and accomplishment." Rosenberg (1990, p. 46) has been more concerned with positioning: “The total performance improvement system is actually a merger of systematic performance analysis with comprehensive human resource interventions. And the science of linking the total system together is known as human performance technology.” Foshay and Moller (1992) stress relevance and range in their definition of HPT, seeing it as structured primarily by the problem of human performance in the workplace and as drawing from any discipline with prescriptive power for solving human performance problems, as well as from other applied fields. For them, this range constitutes the field’s uniqueness.

Dick and Wager (1995, p. 35) offer a more conceptual view of HPT as being “a fundamental commitment to the identification of organizational performance problems and the development of the most appropriate solutions.” This view corresponds to Carr’s definition of the field as one whose goal is “diagnosing organizational ills and improving human performance within organizations” (1995, p. 59). Perhaps Harless (1995, p. 75) best sums up the various definitions by adapting one proposed by Stolovitch and Keeps (1992). He defines HPT as “an engineering approach to attaining desired accomplishment from human performers by determining gaps in performance and designing cost-effective and efficient interventions.”

No single definition is likely to elicit universal agreement, but a consensus on its critical attributes appears to have formed:

HPT is systematic. It is organized, rigorous, and applied in a methodical manner. Procedures exist that permit practitioners to identify performance gaps (problems or opportunities), characterize these in measurable or observable ways, analyze them, select suitable interventions, and apply these in a controlled and monitored manner.

HPT is systemic. It perceives identified human performance gaps as elements of systems, which in turn interface with other systems. It rejects the acceptance of apparent causes and solutions without an examination of other facets of the system. Performance is seen as the result of a number of influencing variables (selection, training, feedback, resources, management support, incentives, task interference), all of which must be analyzed before appropriate, cost-effective interventions are selected and deployed.

HPT is grounded in scientifically derived theories and the best available empirical evidence. It seeks to achieve desired human performance through means that have been derived from scientific research, when possible, or from documented evidence, when not. It rejects enthusiastic, unsubstantiated interventions that cannot demonstrate firm theoretical foundations or valid performance results. HPT is open to new ideas and potentially valuable methods or interventions. It requires, however, that these offer systematically organized evidence to support their potential value.
HPT is open to all means, methods, and media. It is not limited by a set of resources or technologies that it must apply. On the contrary, HPT is constantly searching for the most effective and efficient ways to obtain results at the least cost.

HPT is focused on achievements that human performers and the system value. It seeks bottom-line results or, as Gilbert (1996, p. 17) characterizes these valuable accomplishments, "worthy performance." The focus is not on behavior or on one-sided victories. HPT's aim is worthy performance as perceived by both the performer and the organization in which she or he performs.

HPT, therefore, is an engineering approach to attaining desired accomplishments from human performers. HP technologists are those who adopt a systems view of performance gaps, systematically analyze both gaps and systems, and design cost-effective and cost-efficient interventions that are based on analysis of data, scientific knowledge, and documented precedents, in order to close these gaps in the most desirable manner.

HPT is also a field that has attracted global attention. Thirty-seven nations are represented in ISPI's 1998 membership directory. In Italy, Germany, France, the United Kingdom, Australia, and New Zealand, the number of HPT practitioners more than doubled between 1994 and 1999, as evidenced by the growth in ISPI membership. The application of HPT is also on the rise in Latin America, the Middle East, and Asia. Two recent studies from Africa attest to the relevance of HPT in developing countries. The first, carried out in Benin (Sohoudji-Agbossou, 1997), was concerned with facilitating the adoption of innovations in the workplace. The second, conducted in Cameroon (Ngoa Nguene, 1998), was focused on structuring existing human resources to improve performance. (See also Chapter Forty-Three, by Alicia M. Rojas and Dawn E. Zintel.)

HPT'S RELEVANCE TO ORGANIZATIONS

Because HPT adopts a systems view of organizations rather than operating piecemeal, it seeks to link the actions and interventions of all the organizational elements that affect overall performance (Rummler and Brache, 1996). In this way, selection, training, feedback systems, incentives, and organizational design can all be woven into the performance fabric. The movement toward the systems approach, although still in its early stages, has accelerated over the past five years, and several authors have been influential in encouraging its growth (see, for example, Fuller, 1997; Robinson and Robinson, 1995, 1998). Thus training departments, for example, which are frequently viewed as creating costly interventions that eat into profits and remove personnel from their posts (where they are, to some degree, productive), now show up as playing a critical role in improving organizational productivity. One result is that many organizations have renamed their training departments to include the words performance, per-
formance support, or performance consulting, but the systems approach to performance improvement also offers benefits to the organization as a whole. The orderliness of the HP technology, the objectivity and care with which analysis, design, and evaluation procedures are conducted, and the linking of training, environmental redesign, feedback systems, and incentive systems to measurable performance—all these elements build credibility and buy-in for the interventions that are applied.

Because HPT has a solid scientific, theoretical, and empirical base, it approaches the solution of performance problems with a coherence that is in contrast to the more eclectic stances and procedures still adopted by most departments of training and human resource development. The foundations of the field permit proponents of HPT to undertake interventions with a uniformity of purpose, but with no sacrifice of flexibility (see Chapter Two, by Marc J. Rosenberg, William C. Coscarelli, and Cathleen Smith Hutchison). HPT seeks optimal solutions, regardless of how they look.

The HP technologist’s usual first step in approaching a performance problem, before attempting any kind of solution, is to conduct a performance analysis in which discrepancies between actual and desired performance are brought to light. Therefore, HP technologists are more cause-conscious than solution-oriented. In the alternatives that they propose, rather than attempting to overcome a performance discrepancy as such, they seek primarily to eliminate the cause of the discrepancy (it generally costs less and takes less time to eliminate the cause than to construct an intervention).

The bottom-line orientation of HPT makes it particularly credible to money-conscious decision makers. Performance analysis, fundamental to HPT, includes as a basic element the assessment of the costs for alternative means of overcoming a gap between actual and desired performance—and this assessment includes the cost of not overcoming the gap. Gilbert (1996), the founder and, in his lifetime, probably the leading thinker of HPT, devised what he called the "performance audit" as a procedure for conducting a performance analysis. This audit is conducted in seven stages:

1. Identify accomplishments (what the system is currently accomplishing)
2. Identify requirements (what the system needs to have done)
3. Identify exemplary performance (what the realistic potential is)
4. Measure exemplary performance
5. Measure typical performance
6. Compute the potential for improving performance (the discrepancy between exemplary and typical performance)
7. Translate this potential into stakes, a measure of economic potential (the savings or improvement that can be expected from the attainment of exemplary performance)
What is interesting in Gilbert's approach is that poor performance is cast in a positive light, as offering great potential for economic gains. What is also noteworthy is that, if the stakes are too low, a performance discrepancy can be left unaddressed until reducing it becomes economically viable. Others (Rummler and Brache, 1988; Swanson and Gradous, 1988) have also devised procedures that address organizational concerns for cost containment; see Chapter Thirty-Nine, by Richard A. Swanson, for more on this topic.

In this vein, Langdon (1995) has introduced a new language of work that addresses human performance improvement in direct, verifiable ways (see also Chapter Thirteen of this volume, where he elaborates on this theme). Works on reengineering (for example, Hammer and Champy, 1993) and intellectual capital (for example, Stewart, 1997; Edvinsson and Malone, 1997; Organization for Economic Cooperation and Development, 1996) also focus on economic means of maximizing performance through efficient processes and appropriate investments in people.

HPT adopts a rational and logical approach to performance improvement. With its systems orientation, it requires that thorough performance analyses be conducted to identify all factors contributing to the current level of performance. It requires a precise statement of the mission(s) of the system in which improved performance is being sought. If there are incompatibilities at the level of the mission—if, for example, the organization says it wants healthy and highly productive workers but has put them to work in a poorly ventilated asbestos-fiber plant—then the performance technologist will focus first on that incompatibility. If the organization’s stated mission is accepted by all, then alternative solutions to the incompatibility are elaborated and objectively analyzed for costs and benefits. The process is reasoned and data-driven. In fact, because all relevant factors must be taken into account, it is highly participative: data are collected directly and indirectly from everyone who is involved. It is an honest and transparent approach to improving performance.

HPT has a close kinship with instructional technology (see, for example, Dean and Ripley, 1998); and, in many ways, as Rosenberg (1982) has pointed out, HPT evolved from instructional technologists’ realization that organizational instruction and training systems were ineffective or inappropriate if other organizational factors were not also attended to. Thus, over time, HPT has moved toward taking the general position of seeking to avoid training solutions. This position may appear disconcerting at first, but closer examination reveals the reasoning behind this stance.

Training, as already mentioned, is generally expensive. This is true because of what it costs to develop and deliver training and, even more important, because those undergoing the training must take time away from their jobs. In addition, recent studies and literature reviews (for example Baldwin and Ford, 1988; Broad and Newstrom, 1992; Ford and Weissbein, 1997) suggest that, unless many other
performance interventions have also been initiated, the lasting effects of training on job performance (that is, effects that can still be observed a year after the training has occurred) will be minimal (that is, only 10 to 20 percent of what was learned will have been retained). If performance can be improved by less costly means—for example, through the elimination of incompatible tasks, the introduction of feedback systems, the designing of job aids—then a higher cost-benefit ratio can be derived. Similarly, if there are more fundamental problems (counterproductive organizational structures, for example, or incompatible organizational processes), then they must be attended to through organizational redesign or strategic realignment before investments in training can achieve the desired results. This kind of thinking, characteristic of the HPT approach, tends to elicit greater confidence from decision makers (see Chapter Three, by Geary A. Rummler). It can also more readily bring about the acquisition of adequate training funds when training actually is the optimal solution.

The language of HP technologists is highly compatible with the language of many organizational decision makers (Langdon, 1995). The approach taken by the professional using HPT is not unlike that taken by the prudent investor or company director. Systems thinking and a concern about measurable benefits are common in many industrial and economic arenas (see, for example, Stolovitch and Maurice, 1998). The professional who considers investments for solving human performance problems in terms of payback periods, costs and benefits, and return on investment is likely to find that organizational decision makers are more open to the proposed interventions.

**A HUMAN PERFORMANCE SYSTEM**

As mentioned several times before in this chapter, HPT seeks to improve the performance of organizations and the people responsible for achieving desired results. It is useful, therefore, to conceptualize organizations from the perspective of a human performance system. Figure 1.1 presents a human performance system model. In brief, as shown in the figure, the external environment presents organizations with opportunities, pressures, events, and resources. These stimulate the organization to generate goals and objectives (its responses to the environment) and internal requirements (a set of actions that will allow it to use the opportunities and meet the pressures from the external environment). One set of internal requirements is specifically related to human performance. These requirements, once articulated, trigger a number of behaviors that result in accomplishments. Behaviors and accomplishments are strongly influenced by both the external environment (what is happening “out there” and how the organization has decided to respond) and the internal organizational environment (composed of many elements). Accomplishments may or
may not suffice; therefore, they must be subject to verification and either accepted as being aligned with the business requirements (a criterion relevant even for nonbusiness-oriented systems) or judged as not being so aligned and as needing modification, in which case the result is usually some alteration in behaviors, which in turn will result in a change in the organization's accomplishments. Analysis of the system, along with a diagnosis of the changes required and the design of suitable interventions, drives the HPT practitioner to engineer the solution that will entail the lowest cost, the fastest turnaround, and the greatest payback.

Figure 1.1. A Conceptual Model for a Human Performance System.

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ENGINEERING EFFECTIVE PERFORMANCE

A second, more operational model for engineering effective performance on the basis of HPT principles is represented in Figure 1.2. Taken together, the two models—the first conceptual, and the second operational—sum up the terrain and the tasks of the HP technologist.

In the model depicted in Figure 1.2, the first step toward the achievement of the desired results is to identify the business requirements clearly. The HPT practitioner can accomplish this step by being proactive in seeking out and probing for opportunities to improve business performance, anticipating the performance requirements that have been created by business initiatives (sometimes even before management has fully articulated them) or surveying business units for changed responses to the external environment. More commonly, however, the requirements come seeking the practitioner, who responds in a reactive but systematic way. In either case, the practitioner is led, in the second step, to identify performance requirements. These requirements may be of a legal/regulatory nature, or they may be related to new skills and knowledge or to some performance improvement that has already taken place (Rossett, 1987). The third step requires the practitioner to precisely specify current performance, which will include not only exemplary performance but also deficient and related behaviors and accomplishments. The identified requirements and the specification of current performance allow the practitioner, in the fourth step, to define performance gaps in terms of their magnitude (size, pervasiveness), value to the system, and/or degree of urgency. The fifth step is one that demands considerable investigative capability and experience, as well as the tools and techniques that can be used to specify performance-gap factors that have (as listed in the figure) direct effects, as causes, or indirect effects, as constraints. These first five steps bring the practitioner to the point of being able, in the sixth step, to identify potential interventions, which may be environmental in nature, may involve skills and knowledge, and may involve incentives and motivation. The seventh step is to select the performance interventions, keeping in mind their appropriateness (in terms of both the internal and the external environment), their economics, their feasibility (where the given system’s resources and constraints are concerned), and their acceptability to the organization and its human performers. The eighth step is to develop the performance interventions in terms of their design, their actual creation, and the verification of their effectiveness. In step nine, the practitioner will implement the performance interventions that have been selected and, in the tenth and final step, will monitor and maintain the performance interventions.
Figure 1.2. An Operational Model for Engineering Effective Human Performance.

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As a field, HPT is still relatively unknown to the majority of human resource professionals, organizational developers, and corporate senior managers. When they are introduced to HPT, they are bound to have questions and concerns raised by its nature and approach. What follows is an attempt to respond to these issues.

Why does HPT appear to employ a specialized and somewhat mysterious jargon? It is true that some HP technologists have created specialized terms to refer to specific concepts or procedures that they have invented, but the general vocabulary of HPT has mostly been drawn from other fields: economics, behavioral and cognitive psychology, management science, education, engineering, and ergonomics. Given HPT’s close relationship to instructional technology, many of the terms and tools utilized by professionals in this field and in the others just mentioned have also become part of HP technologists’ verbal repertoire, and, certainly in recent years, systems analysis, computer technology, and human factors engineering have had strong effects on the HPT field and consequently on its vocabulary. The growing interest in the tools and techniques of measurement and evaluation, quantitative business analysis, artificial intelligence, telecommunications, and information-systems technology has also left its imprint. HPT is not so much a jargon-generating field as one that is perpetually going through a process of assimilating other fields’ technical vocabularies as it seeks richer resources for helping to improve human (and hence system) performance.

As a “technology,” is HPT mechanistic and dehumanizing? HPT is essentially concerned with the kinds of human performance that are valued by individual performers and organizations. It is not a field of social engineering. Its practice is rational, not ideological. HP technologists are very aware of the individual nature of human motivation, goal orientation, and value systems. Where these are defined as essential to the mission or missions of a system, they are treated with great care. Where they are not so defined, they nevertheless remain of critical importance when changes are prescribed for a system. If they are to be effective, efforts to improve any system that relies on human performance must maintain the strongest respect for the human being. Organizations in which productivity is high and quality is maintained are those where morale, employees’ self-esteem, and workers’ satisfaction are also at a high level. It is not axiomatic that what is good for the company is necessarily evil for employees. Excellent performance is often translated into greater job security, higher salaries, and employees’ overall high level of interest and satisfaction in their work. Pride of performance in the workplace is still an important value for most workers, although its value has been lessened as a result of the poorly conceived downsizing initiatives undertaken by
many companies during the 1990s. HPT, far from being mechanistic and dehumanizing, attempts to affect systems in ways that foster both worthy performance and individual self-worth.

Is HPT intolerant of other approaches to achieving desired human performance? HPT requires (1) clear definition of a system's mission and its strategic plan, (2) measurable indicators of actual and desired outcomes, and (3) consideration of the relationship between costs and projected benefits for each intervention (see, for example, Stolovitch and Keeps, 1997). Therefore, HPT practitioners manifest intolerance only toward those who disregard the results that a system must produce, or who make arbitrary decisions that cannot be supported by a clear base of data. Similarly, HP technologists become uncomfortable when they are faced with interventions that appear to spring more from the ideologies and interests of their proponents than from the documented needs of those performers whom the workplace has also designated as relevant to the organization's overall mission. Nevertheless, HPT is far from being closed or intolerant or from considering itself complete. It has consistently remained open to new technologies and theory bases. Many HP technologists follow, with interest, the developments in brain research, electronic performance-support systems (EPSS), and knowledge management, to name only a few such areas (see Chapter Twenty-Three, by Steven W. Villachica and Deborah L. Stone, and Chapter Forty, by Dale C. Brandenburg and Carl Binder). HPT remains cautious, however, about accepting approaches or innovations that are still lacking in well-documented empirical evidence of their effectiveness.

Is HPT too enamored of new information and new communication technologies, or is it too ignorant of their capabilities? As the twenty-first century opens, virtually every facet of every organization will be affected by an ever-growing array of increasingly sophisticated technologies. The HP technologist cannot ignore the proliferation of electronic communication devices, performance-support tools, and work-enhancing systems. There is perpetual enthusiasm for exploiting technology, which requires deep knowledge of electronic hardware and software advances. How can HP technologists keep up? How can they separate valid potential for performance improvement from expensive but unproductive ventures? The answer is simple yet difficult to apply: HPT is committed to systemic thinking, to data-based analysis, and to rational decision making. Its goal is worthy performance, in which value is compared to costs before an intervention is selected. The HP technologist's role is to hone analytical and evaluative capabilities while staying informed about advances in technology. Therefore, the experienced HP technologist characteristically avoids becoming enamored of any solution and constantly remains aware of all potential prospects for performance enhancement. This form of equilibrium is an essential commitment of the HP technologist and is a major form of the value added by HPT.
Is HPT too management-biased because it is driven by results? It is usually management that brings the HP technologist into contact with a performance gap. Therefore, the HP technologist must report back to management. But data on performance (or lack of performance) are collected from the actual performers for whom interventions are designed. Job aids, feedback systems, training courses, and incentive systems cannot possibly be effective if the characteristics and value systems of these performers are not taken fully into account (see Tosti and O’Brien, 1979; Stolovitch and Lane, 1989). In the workplace, the performance valued by the employer must be the prime consideration, but this does not exclude careful analysis of employees’ goals and motivations. The ideal intervention, which often results in increased freedom and initiative for the performer, as well as in greater sensitivity to personal style, is one that equally favors management and the individual employee or performer. Recently, HP technologists have turned their attention to the community at large. For example, as cited earlier, Roy (1998) applied an HPT model to improving the quality of life for the elderly. Other HP technologists have used HPT to improve the performance of volunteers in charitable mission-related work or the nature of human interactions in a mental health facility. HPT is driven by results, but this does not imply a bias in favor of management; rather, the overall goal of HPT is to achieve accomplishments that are valued by everyone in the targeted system.

Is HPT essentially an American and western European phenomenon? Much of HPT has roots in Western science, but the field is not narrowly focused on any one particular culture or ideology. It is true that HPT does seek to improve performance, and this implies a commitment to continuous progress, but this value is not limited to the United States and Europe. Globalization has opened almost all cultures and countries to international scrutiny. The Internet creates a world of instantaneous communication. HPT is open to all means of helping to achieve the ends that individual systems value; it imposes no restrictions on what constitutes a valued end within the dictates of ethical practice (see Chapter Thirty-Three, by Peter J. Dean). In this respect, HPT accepts influences from any quarter, so long as whatever claims are made for those influences can be substantiated to the global community.

Can only those who have had extensive formal training in HPT employ its principles? HPT, like any other field, requires careful study, practice, and feedback—the same characteristics of most other kinds of formal training programs. The purpose of this chapter, however, is not to create and develop professional HP technologists; rather, its intent is to encourage a wide range of professionals to explore the viewpoints and tools of HPT. Doing so should help them improve their own performance and, ultimately, should have a positive effect on organizational performance as relevant concepts and practices are applied from this growing field. Articles about HPT abound, particularly in such journals as
Performance Improvement and Performance Improvement Quarterly, the official publications of ISPI. (The remaining chapters of this handbook will certainly also aid the reader in gaining greater knowledge of and insights into the field.) Seminars and workshops by many of the authors featured in this volume are generally well structured and informative and provide ready-to-use skills. Conferences on HPT, such as those held annually by ISPI, or the HPT Institutes that are run by ISPI worldwide, are also useful for learning about the field and its applications, and, more important, for sharing experiences in informal, after-session conversations. Reading, formal workshops, conferences, institutes, and sharing of information and experience can all make HPT readily accessible to the interested person. With respect to specific skill sets for the HP technologist, Chapter Thirty-Two, by Harold D. Stolovich, Erica J. Keeps, and Daniel Rodrigue, also provides considerable information.

CONCLUSION

There is little doubt that HPT adopts a hard-nosed, highly objective approach to improving human performance. HPT takes into consideration the cost of any intervention aimed at improving human performance. It views this cost as an investment that must yield those returns that are valued by the investing system. It is the system rather than the HP technologist that defines what these returns should be. Once the purpose of the system has been defined and the desired returns have been overtly specified, however, HPT demands systematic and objective study of performance problems and opportunities. Its point of reference is worthy performance, as determined by the system. If HP technologists, human resource specialists, organizational developers, and other professionals and managers cannot demonstrate effectiveness in terms of what is valued by the system in which they operate, then they must not be surprised when their departments experience heavy budget cuts, are maligned, or become dumping grounds for persons whose contributions to the system are no longer judged useful.

HPT is a powerful, emerging field that has the potential to offer organizations astonishing benefits. Almost twenty years ago, Blount (1980, p. 16) wrote that “the untapped and unapplied proven potential for improvement in our business, in our people, in our products, in our service, [and] in our customer relations” that could be realized through HPT was “absolutely awesome.” This affirmation still rings true today as we embark on a new millennium. The results of improved human performance can be dramatic increases in productivity, greater satisfaction among workers, and an enhanced world community—and that is what HPT is all about.