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ABSTRACT

Private sector training is a primary force in education in the United States for a number of reasons: (1) the sheer amount of such training makes it a major factor; (2) this training has a significant impact on the nation's productivity and competitiveness; (3) it plays a major role in creating innovative and cost-effective solutions to training problems; and (4) innovations in training in the corporate world can be transferred to the schools. The role that the private sector plays in education is not widely known. The application of its solutions to broader education problems fails to occur because of lack of awareness. A conceptual model of training such as that used in private industry is described; this approach could be used to improve education. This model of training considers the audience, the content, the process of training, and the cost. These factors are first described individually and then integrated into a data-based, multivariate model. Use of the model represents an opportunity to achieve a full understanding of private sector training. (KC)

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INTRODUCTION

Training provided by the private sector is a major force in the economy. However, its importance is appreciated and understood by few. The knowledge that exists consists largely of measures of volume -- numbers of participants and cost data in a variety of categories. While useful, these measures provide an incomplete picture that does not allow a full understanding of what organizations do to train their employees.

A complete picture of the training that employees receive should include the process of education and the content as well as the audiences and costs involved. The availability of this information will provide understanding of the quality of training as well as the quantity. This will serve to raise the overall level of training by focusing attention on how it should be planned and delivered.

WHY UNDERSTAND PRIVATE SECTOR TRAINING?

Employers represent a major source of the training provided in the United States. Annually more people are enrolled in training provided by employers than are enrolled in institutions of higher education. These represent more than 18 percent of enrollments and almost 10 percent of educational expenditures in the United States (American Society for Training and Development, 1989).

The impact of this training on productivity is even more impressive than its volume and cost. Carnevale indicates that during the period 1929-1982, learning on the job contributed about 55 percent of all improvements in the nation's productive capacity (Carnevale, 1989). In contrast, education prior to work was responsible for 26 percent and machine capital contributed to 20 percent of the improvements.

Innovation and change in facilitating learning have been major contributions of employer-delivered training. New ways to raise quality and reduce the delivered cost of education have originated in the private sector. New uses of technology to improve education and training are to be seen in the classrooms and learning centers of corporate America.

The bulk of employer-delivered training is directly job-related. Its objective is to develop the skills needed to perform specific job tasks. The content of training and the trends in content change provide important insights into the current and future performance needs of the workforce.

Examination of the content of job-based learning can provide insights into the relevance of traditional education. The inclusion of remedial training in corporate training programs indicates possible failures of the educational system to provide needed basic education. Such examination can also serve to identify topics to be considered by school systems and by higher education for inclusion in curriculum content in the future.

Any one of these considerations alone would provide sufficient reason for government, industry, and education to better understand private sector training. In combination, they represent a compelling reason for developing a complete picture of the training provided by employers. Their importance in assuring that the country has and keeps a competitive workforce demands that means be found to represent comprehensively but simply what is being done and how well it is being accomplished.

A CONCEPTUAL MODEL OF TRAINING

OVERVIEW

A wide range of variables is used to describe the training that takes place in the private sector. These include descriptions of those who receive the training, what is taught, and what it costs. Usually these measures are considered in isolation, providing an understanding of some aspects of training without affording a view of the total picture.

What is needed is a means of capturing the principal elements of training in a way that identifies individual variables while demonstrating the key relationships between them. This can be accomplished with a multi-dimensional model that considers the key elements in conjunction with one another. The elements to be considered here are the audience, the content, the process of training, and the cost. These will first be described individually and then integrated into a data-based, multi-variable model.

The variables considered here represent a core that effectively describes training provided by organizations. However, they do not represent an exclusive set. There are many more factors that can be considered. The intent is to demonstrate a workable approach -- a methodology that can be followed in a number of settings. The use of such a methodology would allow direct comparison of data from different sources. Use of a consistent approach would increase the value of studies that typically can only be compared anecdotally.

THE AUDIENCE DIMENSION

Audience describes the people receiving the training. In a business, this can be based upon the functional areas in which the employees work. The approach followed here fits most manufacturing organizations. Audience can be broken into the following functional categories:

Marketing

Service

Manufacturing and Development

Internal and Office Systems

Finance and Planning

In turn, each job within the enterprise is typically assigned to one of these functional areas. The classification of jobs needs to be done at a level of detail that results in a manageable number of jobs. In most organizations, there are 80 to 100 fundamental jobs. An overly

detailed approach will result in an unwieldy number of jobs. A too general classification will result in too few jobs to give any real meaning to the data.

Other possible classifications include industry, occupation, geographic location, income, and education. The approach to be followed will depend upon the setting and the objectives of the analysis.

THE CONTENT DIMENSION

Content refers to the nature of the training offered. As with audience, there is a number of possible categories. The approach used here considers the purpose of the training. The categories are:

- Employee Development
- Job Training and Development
  - Entry
  - Experienced
  - Expert
- Management Development
  - First Line
  - Middle
  - Executive

Employee Development is training that is not related to a specific job. It may be used by employees in any functional area. Examples might include computer literacy, computer applications such as data base management, effective communications, and writing skills.

Job training and development is specific to a given job. It is broken into three levels.

Entry training brings those entering a job to a minimum acceptable level of effectiveness.

Experienced training enhances the skills of the people already functioning at a basic level. It allows them to increase their effectiveness and impact upon the organization.

Expert training allows the experienced employee to assume broader responsibilities and prepares him or her for promotion to higher level jobs.

Management development addresses the managerial training needs of the newly-appointed first line manager or supervisor, the middle manager who manages managers, and the executives of the organization.

THE PROCESS DIMENSION

Process considers the way in which training is developed and delivered.

Traditionally, training has been described using measures of flow and cost. The indicators of flow include enrollments, completions, and student days. A student day represents one student in a structured learning experience for one day. This could be in a class or in formal self-study. While useful and important for quantifying the volume of

training, these measures give no sense of quality. Acceptable quality is often assumed, but there are ways in which quality of training, like volume, can be assessed with some precision. The quality of training is dependent on the quality of the development and delivery of the learning experience.

An idealized view of how the training process should function is badly needed. Actual training practices can then be compared to the ideal. The degree to which they correspond can be evaluated and rated to give an assessment of quality.

The Systems Approach to Education (See Figure 1) used by the IBM Corporation is a useful and generally accepted model of the training process.

The training process begins with Business Requirements. These are actions that the organization has decided to take that represent change. New products, reorganization, entry into new endeavors, expansion of services, etc., are actions that create Business Requirements.

Performance Requirements are the work that people will have to do as a result of the Business Requirements. They may be old behaviors, changes in ways that things are presently done, or entirely new behaviors. They represent the impact of change upon the members of the organization.

Educational Requirements are new behaviors that must be taught to employees. Not all Performance Requirements lead to Educational Requirements. Some can be performed immediately. However, some generate Educational Requirements -- things that people cannot do before being trained.

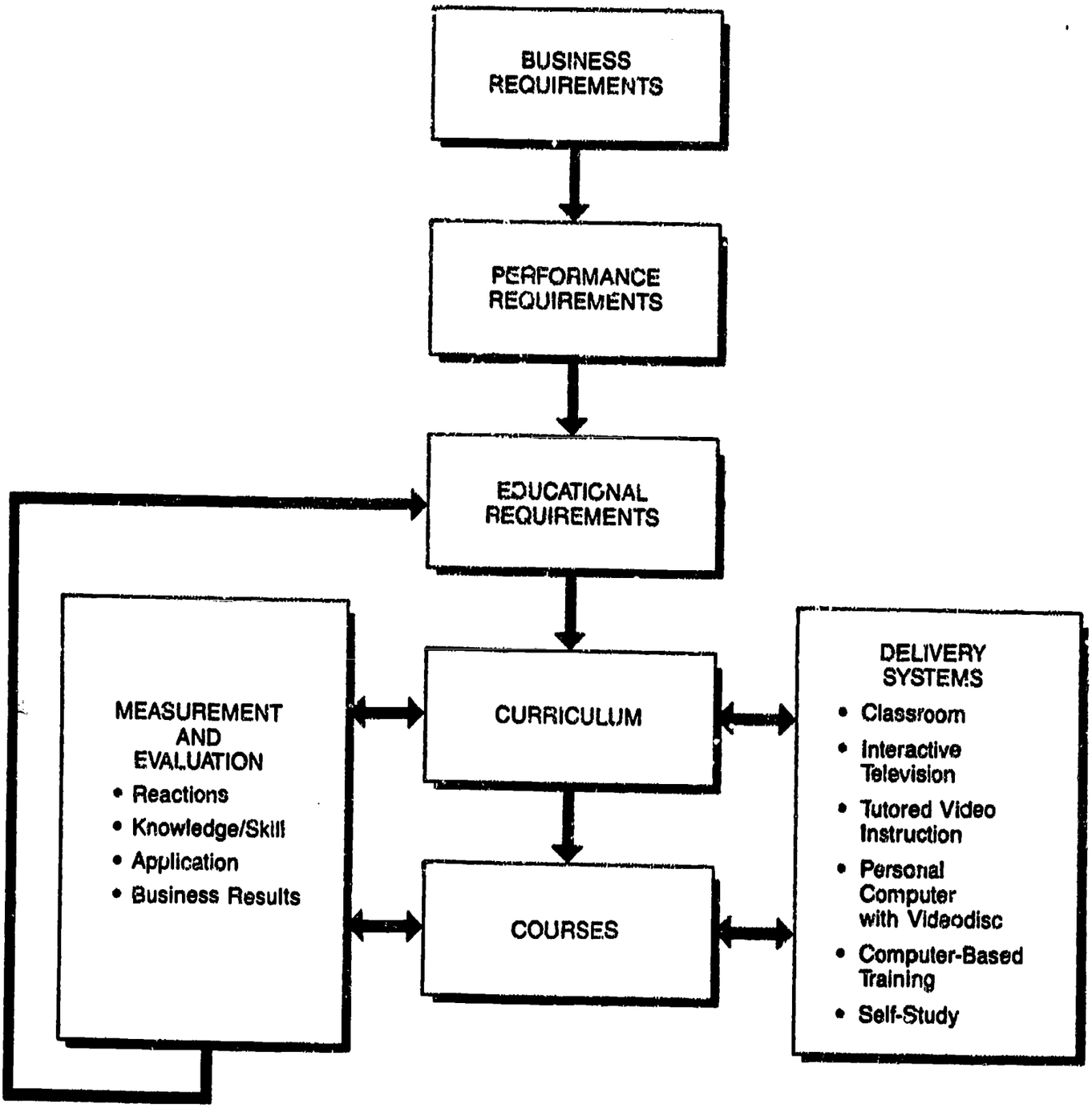

Figure 1 -- Systems Approach to Education

Curriculums are changed by Educational Requirements. Additions, modifications, and deletions are made to them to incorporate the learning of needed new behaviors. In a complete training system, there is a curriculum for each major job. The impact of Performance Requirements that create Education Requirements for specific jobs is seen in the changes to the curriculums for those jobs.

Courses are the building blocks of curriculums. Changes to curriculums are implemented in the courses that make up the curriculum. These changes are seen in modifications to existing courses, elimination of unneeded courses, and the development and implementation of new ones.

Measurement and evaluation of results are key elements in any training system. They are necessary to assure that training works and that needed behaviors are acquired. There are four levels of measurement used in the Systems Approach to Education.

Level one, reactions, reflects the students' responses to the training experience. Did they like the course? Did they feel it was worthwhile? What are their suggestions for changing the course?

Level two, knowledge, is the verification that learning actually took place. It is usually measured by tests at the beginning of a course to establish entering behavior and tests at the end to demonstrate capability at the end of a course.

Level three, application, examines workplace use of the skills learned. It assesses whether behaviors on the job were actually changed and improved by training.

Observation, questionnaires, and studies determine the impact of training on work performance.

Level four, business results, focuses on how training affects business performance. It correlates business measures with training results to see how the actual operation of the enterprise has been affected.

Virtually all training is evaluated at level one, the reaction level. Knowledge measures are common in many programs but are not universal. Assessment of application of training occurs occasionally. However, correlation of business results with training performance is rare.

A complete evaluation of training requires measurement at all four levels. Otherwise, we do not know how the training system is performing and what its impact is. Evaluation of business results is difficult and not always possible. However, it should not be ignored. Meaningful attempts should be made and, when feasible, they should be incorporated into the measurement system.

Delivery Systems are the ways in which training is actually delivered to the student. Selection of the appropriate delivery system for each educational application is the key factor in maintaining

quality while controlling cost. There are six principal education delivery systems.

Classroom (C/R) -- delivery by an instructor to students gathered in one location.

Interactive Television (ITV) -- course content is delivered by a live instructor in one location to students in multiple locations via television transmission.

Tutored Video Instruction (TVI) -- an instructor on videotape delivers the course. Sequence and timing are controlled by a facilitator or tutor who also answers questions and gives feedback based on student responses.

Personal Computer with Videodisc (IVD) -- course content is presented by a personal computer which also controls the presentation of sound and images from an attached videodisc player.

Computer-Based Training (CBT) -- content and exercises in a course are presented by a computer with timing controlled by the student.

Self-Study (SS) -- course content is displayed in print, as in a textbook, or by videodisc or videotape.

THE COST DIMENSION

Cost is the final dimension of training to be considered in the model. Training cost may be summarized in a number of ways. It may focus on the delivery costs involved in the actual presentation of the training. Program development costs may be accumulated for evaluation. The developmental expenses may be incorporated with delivery costs to show the total cost of education. Cost may be calculated to show expense per curriculum, per course, or per student day. The specific data used are determined by the focus of the analysis being made.

INTEGRATING THE DIMENSIONS IN A DATA-BASED MODEL

A comprehensive picture of training unfolds when the variables described above are quantified and related to each other. Relationships become apparent. Trends and directions are more visible.

A series of matrices or tables can be created. Each relates two dimensions of training to one another. Three such matrices are needed to relate the four variables in the conceptual model of training described above.

The first matrix pairs Audience and Content, the second relates Audience to Process, and the third considers Process and Content. The fourth dimension, Cost, is included as content of the matrices. While a three-dimensional matrix is conceptually possible, it is simpler and more useful at this stage to consider a series of three two-dimensional matrices.

	CONTENT			
AUDIENCE	ENTRY	EXPERIENCED	EXPERT	TOTAL
MARKETING	Participants			
	Student Days			
	Cost			
SERVICE				
MANUFACTURING & DEVELOPMENT				
INFORMATION & OFFICE SYSTEMS				
FINANCE & PLANNING				
TOTAL				

Figure 2 -- Audience and Content Matrix

The focus of these matrices can range from the micro-level to the macro-level. Data can be displayed for individual enterprises or for the entire country. Data collected from individual companies can be summarized for any level where analysis is needed or desired -- by region, by industry, by size of organization, etc.

The Audience and Content Matrix (See Figure 2) provides a useful format for summarizing the cost and volume measures of training. Possible entries include student days, student days per participant, overall cost, cost per student day, etc. These can be broken out by content level within major audiences.

The Audience and Process Matrix (See Figure 3) provides useful insights into important aspects of the quality of training. The organization of the matrix compares key elements in the development process by functional audience and in total. Examination of the data helps gauge progress in implementing a Systems Approach to Education.

Comparison of the number of major jobs with the number of curriculums developed for a functional area shows how far training systematization has proceeded.

The count of courses by evaluation level shows how far effective evaluation techniques have been implemented.

A sense of the degree of implementation of cost effective delivery systems is seen in the tallies of courses by delivery system.

	AUDIENCE					
PROCESS	MARKETING	SERVICE	MFG/DEV	INFO/OFC SYSTEMS	FIN/PLN	TOTAL
JOBS IDENTIFIED	Number of Jobs					
CURRICULA	Number of Curricula					
COURSES	Number of Courses Student Days					
COURSES EVALUATED						
LEVEL 1 LEVEL 2 LEVEL 3 LEVEL 4	Number of Courses Student Days					
COURSES DELIVERED BY						
C/R ITV TVI IVD CBT SS	Number of Courses Student Days					

Figure 3 -- Audience and Process Matrix

The Process and Content Matrix (See Figure 4) affords a different perspective on specific education processes by examining the process variables within level of content. Comparisons can be made that are similar to the ones described above for the Audience and Process Matrix.

SOURCES OF INFORMATION AND DATA

NEEDED SOURCES

A generally accepted vocabulary is needed to facilitate understanding of any complex activity. This is true of private sector training. Terminology used must have common meaning to all involved. Thus, consistent communication can be assured among the diverse parties involved.

A structure is required that is simple enough to facilitate general understanding without imposing unnecessary rigidity. It must be sufficiently flexible to describe actual occurrences while maintaining an organized perspective and focus.

This vocabulary and structure must include data elements as well as words and terms. Consistency in data content and the terms used to describe them is essential if studies are to be made over time to describe and analyze training.

The use of a generally-accepted model will provide a framework for describing the process and results of training. It also will contribute to improving training. Organizations will focus on the process as well as the results.

PROCESS	CONTENT: ENTRY	EXPERIENCED	EXPERT	TOTAL
JOBS IDENTIFIED	Not Applicable			
CURRICULA	Not Applicable			
COURSES	Number of Courses Student Days			
COURSES EVALUATED				
LEVEL 1 LEVEL 2 LEVEL 3 LEVEL 4	Number of Courses Student Days			
COURSES DELIVERED BY				
CLASSROOM INTERACTIVE TV TUTORED VIDEO IVD CBT SELF STUDY	Number of Courses Student Days			

Figure 4 -- Process and Content Matrix

The models of training described above reflect these requirements. General use of such models in summarizing the results of training would allow comparison of multiple studies and reports. It would create a common frame of reference that would improve communications and improve understanding. It would assure a compatibility of data otherwise impossible without consistent terminology.

EXISTING SOURCES

Existing information about private sector training focuses on volume and demographics. There is no consistent pattern to the kind of data collected. No attempt is made to assess the quality of the training process.

BRIDGING THE DIFFERENCE

It is possible to move from the present state in which the kind of data available about private sector training is varied and dissimilar. The availability of consistent and comparable data for meaningful study is very feasible. The following section describes a process that can lead to that capability.

USING THE MODELS TO UNDERSTAND PRIVATE SECTOR TRAINING

IMPLEMENTATION

The use of models such as those suggested here represents an opportunity to achieve a full understanding of private sector training. It is a practical approach that can be put into place easily. The

process consists of three stages -- consensus on content, commitment to use, and continuing application.

Consensus on the structure and content of the models must be achieved. This involves participation of representatives of the principal parties involved -- government, the private sector, and academic institutions.

A study group or task force can be convened and charged with the responsibility to formulate and eventually finalize the training models. The group would be led by the Department of Labor which would have as its partners the two major professional training organizations in the United States, the American Society for Training & Development (ASTD) and the National Society for Performance & Instruction (NSPI).

ASTD and NSPI would select representatives of business, industry, and education as their participants in the process. The involvement of the two professional organizations will insure a balanced perspective. Broad representation of the entire community of training developers and users will occur easily and naturally. The involvement of the Department of Labor in leading the effort assures that government perspectives and needs will be incorporated in the final work product.

Commitment to the use of the models will be needed if the benefits of their use are to be realized. This means that parties to training will agree to follow the formats established in their internal reports. Studies commissioned by government and by associations should require the employment of the models. The consensus established will have to be maintained through voluntary discipline and involuntary requirements.

Continuing application will then follow and the models will be established as de facto or actual standards. Over time their structure and details will evolve through use and can be modified periodically as needed.

BENEFITS, CHALLENGES, AND OPPORTUNITIES

Private sector training is a primary force in education in the United States. This is true for a number of reasons. The sheer amount of such training makes it a major factor. This training has a significant impact on the nation's productivity and competitiveness. It plays a major role in creating innovative and cost effective solutions to training problems. The private sector leads the nation in the use of technology in education.

Innovations in training in the corporate world can be transferred to the schools. More formal arrangements and partnerships can be established between businesses and public education to provide new solutions to the education challenges the nation faces.

The role that the private sector plays in education is not widely known. Its innovative contributions to educational problem-solving remain largely undiscovered. The application of its solutions to broader education problems fails to occur because of lack of awareness. It can play a major role in improving the quality of education in all of its forms if it is better known and understood. The approach described here can begin that process.

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