VBA NETWORKED, MULTIMEDIA, MULTIMETHOD, TRAINING, PERFORMANCE SUPPORT, AND CREDENTIALING SYSTEM

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ABSTRACT

The Veterans Benefits Administration (VBA) is undergoing a tripartite modernization: information systems; business processes and organizational structures; and performance-based employee education, training, and credentialing. The latter effort is the focus of this paper. A prototype training, performance support, and credentialing system is being built for the rating specialist occupation. Rating specialists perform legal, medical, and policy analysis, decision-making, and synthesis of veterans benefits claims. Due to the high-cognitive nature of the job and the requirement to provide distributed training at 58 regional offices, VBA has designed a system that is networked, multimedia, and multimethod, based on a three aspect job and task analysis (behavioral, cognitive, and work process flow) and on learning analyses which synthesizes behavioral, cognitive, affective, experiential, cooperative, and adult facilitative approaches. The system integrates a variety of delivery technologies (networked, cooperatively structured ICW; videoteletraining; electronic performance support system; case studies; job aids). Extensive trial and validation activities are included in contract requirements. Performance-based criterion tests are being built, validated, and tested for reliability; these will also be used for employee credentialing. Anticipated benefits include reduction of training time from 18 to 6 months; cost avoidance in excess of $30M; significant performance improvement in the rate of claims processed yearly, with associated reduction of unit costs (cost per rating) of 66%.

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INTRODUCTION

The Government Performance and Results Act (GPRA) of 1993 requires that Federal agencies directly link strategic training plans (and the training programs which result from these plans), performance measurement, and budgeting. The Veterans Benefits Administration (VBA) is implementing these provisions through the program described here. This paper traces the initiation, funding, and ongoing acquisition of the first networked, multimedia, multimethod, training, performance support and credentialing system (TPSCS) for training VBA employees. It describes the system requirements and characteristics, projected costs, and actual costs thus far.

PURPOSE

The purpose of this paper is to discuss the process (including lessons learned) VBA has gone through, using systematic education and training needs assessment , strategic planning, budgeting, and acquisition, to introduce a networked, multimedia, multimethod, training, performance support , and credentialing system.

The paper will provide practical details, such as cost and schedule data (projected and actual), and acquisition suggestions for program or project managers. The paper will also describe the training system currently being developed, including the integration of ISD, cognitive, adult learning, and cooperative theories and strategies appropriate to high-cognitive instruction. These sections of the paper will hopefully be useful to instructional developers. The effort described in this paper represents a commitment to ISD by a major non-DoD Federal agency which has previously trained only through traditional OJT and classroom approaches, with little student evaluation, the paper may be of interest to Government or commercial training consultants and others interested in technology transfer from the DoD to other Federal agencies.

BACKGROUND

VBA is one of the three parts of the Department of Veterans Affairs, the others being the Veterans Health Administration and the National Cemetery System. VBA has approximately 12,500 employees, organized into 4 geographic areas and 58 regional offices. The number of employees may decline over the next several years to 10,000+, with accompanying organizational restructuring. An age graph of VBA employees shows a very significant spike at age 48. This factor, along with the impact of reductions in personnel through early retirements and other approaches, creates a significant training need in all VBA business areas.

Business Situation

The business of VBA is to serve veterans. It administers disability compensation and pension, insurance, burial, educational, vocational rehabilitation and counseling, loan guaranty, and other benefits worth billions of dollars. The business areas are supported by staff functions, such as finance and information systems.

VBA continues to have performance challenges in providing accurate and timely processing of millions of veterans claims, many of which involve complex legal and medical issues and require interface with other Government agencies internal and external to VBA . For example, in the area of compensation and pension claims, VBA has a backlog of approximately 300,000 claims, with an average processing time of 161 days. Various oversight reports by the General Accounting Office (GAO), and the VA Inspector General have analyzed the claims process and made a number of recommendations for improvements; all of these reports mention a need for improved training of employees.

In order to improve organizational performance in claims processing and all business areas, VBA is undergoing a tripartite modernization: updating computer hardware and software applications; reengineering business processes; and improving development of employees through application of training and educational technologies. The latter effort is the subject of this paper. VBA desires to bring greater accountability, consistency, effectiveness and efficiency to its training programs, thereby improving organizational performance and employee development, and increasing return on investment.

Training Situation

In response to GPRA requirements and its own recognition of the need to modernize, VBA is changing its approach to employee development and training.

For many years, VBA training has varied among the regional offices, but has primarily consisted of some form of on-the-job training supplemented by classroom training. Classroom training occurred either in training rooms in the regional offices, or at the Veterans Benefits Academy in Baltimore. In 1993, at the request of a VBA Education and Training Work Group, three VBA courses were evaluated by a team from the Naval Air Warfare Center Training Systems Division (NAWCTSD).

Bailey, Hodak, Shepherd, and Hassen (1993) found significant weaknesses in over 25 areas, including instructor and facilitator skills, consistency, curriculum structure, and evaluation of skills attained. The results were what might be expected in an environment in which subject matter experts have been asked to become curriculum developers and instructors.

Besides examining examples of existing VBA training, NAWCTSD also examined whether an overall system and management structure for training needs assessment, development, execution, and evaluation existed within the agency. Hassen et al. (1993) concluded that no such system nor management structure existed, and recommended their creation. This report led--through the efforts of the Education and Training Work Group and the Under Secretary for Benefits--to the creation of the Employee Development and Training Staff, the development of a formal strategic training plan, and long term implementation of a VBA training assessment system.

The Employee Development and Training Staff (20T) was formed to provide a central point of contact for assistance in needs assessment, strategic training plans, instructional systems development, performance measurement and improvement. Assistance is provided to services, staff, areas, and regions, upon request.

Budgeting Situation

Funding for training programs in VBA has traditionally been included within the budgets of the various services (compensation and pension, education, insurance, loan guaranty, vocational rehabilitation and counseling), staff functions (e.g. information services, human resources), areas and regions. Since baseline cost and effectiveness data was not available, and since performance-based evaluation was not planned as part of training development and delivery, budget submissions were not usually well connected to business objectives.

As shall be discussed below, improvements in the linkage of the strategic training plan with the overall VBA strategic plan has been followed by better integration of the long range planning and budgeting of training programs into the multi-year budget submissions of the services, and linkages between training-based performance improvement goals and GPRA goals.

PROGRAM INITIATION

In September, 1994, VBA entered into an Interagency Agreement with a federal agency which provides a Government-wide contract for training analysis, planning, and management. VBA requested contract support for improvement of one of its key jobs--the rating specialist, who is responsible for processing compensation and pension benefits claims. The primary reason stated for selection of the rating specialist was to reduce the claims backlog.

Existing training for rating specialists consisted of up to two years of on-the-job training supplemented by classroom training at the regional offices or at the Baltimore Academy. This approach to training was very costly in terms of both trainee time and supervision time. Additionally, since the graduates were not sufficiently evaluated (using measures which were performance-based, objective, consistent across regional offices, reliable and valid), return on investment (as specifically related to improvement in employee skills, one of the VBA's GPRA goals) was not known.

The purpose of VBA's contract was to remedy this situation.

At the time the Interagency Agreement was executed, VBA estimated that the cost would be $400,000 and the period of performance would last approximately one year. Things did not prove to be quite that simple, as shall be discussed below.

PHASE ONE--TRAINING NEEDS ASSESSMENT & PLANNING

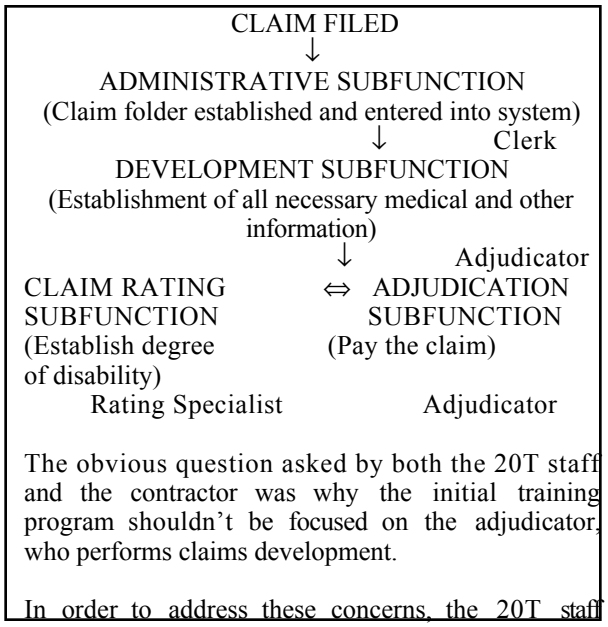
Phase one of this program consisted of functional-level training needs assessment and development of management plans for the next three program phases. The function examined was claims processing.

Activities and Products

Although VBA's Education and Training Working Group had identified the Rating Specialist as the occupation which would be addressed by the new training system, this conclusion was reexamined in phase one because of a concern that training the rating specialist might not provide the most "bang for the buck" in terms of affecting the claims processing backlog. This concern was reinforced by study of various GAO, VA and VBA claims process analyses which indicated that claims development (which focuses on gathering all necessary evidence to establish a disability) was the most important source of delay and rework. Claims development is

performed by personnel other than rating specialists (see Figure 1).

Figure 1. Simplified representation of claims processing function



The obvious question asked by both the 20T staff and the contractor was why the initial training program shouldn't be focused on the adjudicator, who performs claims development.

In order to address these concerns, the 20T staff visited regional offices to confer with adjudicators and rating specialists, and interviewed compensation and pension service personnel in Washington, D.C. They also visited representatives of the major VBA modernization initiatives, including compensation and pension service teams developing an expert system to support claims development, information systems teams developing VBA-specific software applications, and reengineering teams addressing restructuring of work processes.

The intent was to determine the comparative process stability and job environment stability of the two jobs (rating specialist vs. adjudicator) in order to determine where training development resources could best be spent in the near term. It quickly emerged that the rating specialist position would be far more stable in the next five years.

On this basis, the 20T staff prepared a Decision Coordinating Paper (DCP) identifying the rating specialist as the point of influence. It included the caution that improvements in rating specialist performance may or may not result in reduction of case backlog, due to the dozens of variables inherent in the claims process. This DCP was approved by the program sponsor, VBA compensation and pension service, and provided a clear basis to proceed.

The initial visits to Washington and the regional offices also provided information that the contractor required to construct a management plan (including detailed schedule, spend plan, and activities layout) for phase two of the program, in a fixed price environment. Later in this phase, a Government-contractor team composed of instructional developers and a subject matter expert met to develop a top level plan for phases three and four of the program

Status

Phase one is completed.

Cost and Schedule

The cost of phase one was $9,000, plus travel. Total cost was $12, 200. The completion of the needs analysis and the draft management plan required two months; however, an additional seven months and several revisions were required before contractor-Government agreement was reached on the management plan. The contract vehicle was flexible enough to allow "turn on" of selected task orders before approval of the entire management plan. The final management plan included consensus on a task inventory of 17 tasks selected by the needs assessment. This inventory served as a foundation for the next phase.

Lessons Learned

The points to emphasize here are as follows:

a. In situations involving a performance issue, initial statements of needs must be probed to ensure that the proposed training program will actually be focused on the best point of training impact. In this case, what appeared to be the best focal point for reducing ratings backlogs (claims development, done by the adjudicator) was not at this time a viable point for training impact.

b. The best point of influence, as indicated by analysis of the work process, may not be a feasible focus for a training program; this is due to the impact of other initiatives occurring within the organization.

c. Mutual agreement between the sponsor and the training developer on not only the training focus but the underlying reasons for the focus is critical.

d. Performance problems must be analyzed to identify those root causes which can be influenced via a training system before trainers and managers attempt to link training effectiveness to organizational effectiveness. In this VBA situation, the temptation was to try to judge rating specialist training according to its impact on the claims backlog. However, this proved to be an oversimplification--the backlog is causes by the interaction of hundreds of variables, only a few of which are impacted by training.

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PHASE TWO--JOB/TASK ANALYSIS

Phase two of the program consisted primarily of a job and task analysis of the rating specialist occupation, validation of the task analysis documentation, and selection of tasks for training. Another significant effort included the creation of a plan and rough order of magnitude cost estimate for phase three of the program . A smaller effort involved an investigation of the applicability of so-called "automated ISD tools" to a large courseware development effort such as VBA envisioned.

Activities and Products

The activities and products of this phase were as follows:

1. Job/task analysis for the rating specialist occupation, consisting of the following:

a. Task identification sheet (including task level conditions and standards) for each task.

b. Detailed task analysis documentation for each task. Documentation included all behavioral activities, including cognitive activities such as evaluations and decisions, down to the task element level; prerequisite skills and knowledge required for each behavioral element; initiating cues; references; and notes. The task analysis documentation for each task ranged from 50 to 250 pages.

c. Work process flow diagrams for each task. These flow diagrams averaged seven pages each. They have proven to be a good starting point for development of electronic job aids.

d. Analysis of medical knowledge required by body system. The rating specialist job is characterized by a relatively small number of very "deep" tasks to perform. Part of the reason for this depth is the extensive medical knowledge required to rate medical disabilities. This analysis is a stand-alone volume which addresses body structure, disabilities, symptoms, etiology, and special considerations for rating. When delivered, the volume had immediate potential as a print job aid and will serve as an excellent foundation for building a medical electronic performance support system.

2. Task analysis validation conference report. This report documents the results of a conference held with eight VBA subject matter experts (SMEs) to select tasks for training and review all task analysis documentation and flow diagrams. This conference was conducted in one week, with each task being reviewed by up to eight SMEs.

3. Report on the potential of so-called "automated ISD tools" to support VBA development of large numbers (several hundred) of lessons in various media. None of the tools were found to have practical and cost-effective applicability to the rating specialist program. Many were tied to equipment-oriented curricula appropriate to the DoD, but not to VBA; none had a proven ability to support development of large numbers of interactive courseware (ICW) lessons.

Status

Phase two is also completed.

Cost and Schedule

Phase two cost was originally estimated at $181,000, plus travel. Actual cost was $218,000. Cost growth was directly traceable to additional work requirements inserted after the original estimate. Additional costs will be accrued to perform supplementary corrections to the analysis in the next phase (see comments under "Schedule" and "Lessons Learned").

Phase two was originally projected to take six months. It actually required nine months. The schedule overrun was the direct result of insufficient quality of initial analysis work performed by the contractor.

Lessons Learned

1. The prime contractor selected by the agency supporting VBA did not have the necessary staff to perform the analysis; as a result, the analysis was assigned by the prime to a subcontractor. The prime had performed very well in phase one of the program, but was not suitable to perform phase two. Lesson learned: select a contract vehicle and contracting agency which supplies contractors appropriate to all activities required by the statement of work.

2. The subcontractor had a large experience base performing aviation courseware for the DoD. However, the contract personnel assigned to the job had little experience performing analysis of tasks which did not address equipment operation and maintenance, and were not described in detail in a manual. The subcontractor underestimated the amount of work and the time required. The subcontract personnel had great difficulty analyzing high-cognitive tasks. This lack of experience caused a large amount of rework, with resultant schedule slippage, and was the basis for additional cost in phase three, because continuing work had to be performed to complete the analysis. Finally, the contract personnel demonstrated an unfamiliarity with basic ISD concepts (identification and development of tasks, cues, product standards, process standards). Lesson learned: Before agreeing to the assignment of a contractor, determine whether the personnel who will be assigned are actually trained and experienced in the levels and types of analysis required. Also ensure that the nominated personnel have produced analysis for a customer who required excellent analysis, who read the analysis delivered, and who used the analysis to support design and development. Note that analyses in the high-cognitive, affective, and experiential domains require particular care and different skills and knowledge, including an understanding of cognitive theory and research.

3. Because the contract vehicle was a fixed price vehicle, VBA did not have sufficient influence on processes or personnel used to ensure quality in the original analysis product. The contractor tended to insist on "bare bones" approaches because additional labor hours would reduce the margin between costs and the fixed price payment. This was true despite a productive, team-oriented relationship between the VBA and the contractor. The contractor's objections were not to the process suggestions, but to implementing these without increasing the fixed price. Lesson learned: Use other than fixed price contract vehicles in buying ISD processes and product, in order to maintain incentives to the contractor to continuously improve processes and products.

4. The federal agency used by the VBA charged a 15% fee for use of their contract. This was an unnecessary expenditure, considering that numerous other Government agencies offer similar arrangements at a fee of 3.5% to 5%. Lesson learned: Compare agencies to control your overhead costs.

PHASE THREE--DESIGN AND DEVELOPMENT OF APPEALS TRAINING MODULE

The purpose of phase three is rapid design, development, production and validation of an intense, multimedia, multimethod training module to address an immediate critical need of VBA .

The performance need addressed by this phase is the reduction of the number of veterans benefits claims remanded from the Board of Veterans Appeals(BVA) back to the regional offices. This need was identified through coordination between 20T and the program sponsor.

Background

Veterans who disagree with the VBA decision on their claims may appeal the decision to the BVA. The BVA examines the claim folder, including all evidence therein, and the decision and rationale provided by the regional office which made the rating decision. If the BVA determines that the regional office treatment of the claim was not sufficient, e.g. the regional office did not gather or interpret correctly all necessary medical evidence, or did not apply due process correctly, etc., the BVA remands the claim back to the regional office for correction or additional development. Needless to say, remands contribute to case backlog, and are frustrating to both the veteran awaiting a decision and to the regional office.

The Appeals Module trains one specific task: "Certify a claim to the Board of Veterans Appeals." The task involves the final regional office examination of the claims file before it is passed to the BVA for review and action.

Activities and Products

The following are the major activities of this phase:

1. Develop, deliver, implement management plan for phase three.

2. Construct, validate, and deliver job performance measures (JPM) for the task "Certify a claim to the Board of Veterans Appeals." (Note: This activity includes establishment of the validity and reliability of the JPMs. The JPMs shall be suitable for use as credentialing instruments if VBA so desires.)

3. Conduct, document, and deliver learning analysis and preparation of instructional media design report. These include target audience description; objectives (with Bloom-Krathwohl taxonomy levels identified); learning hierarchy; module structure; design and evaluation strategies; and media, method, and setting selections; lesson flowcharts and storyboards; and courseware standards and conventions.

4. Develop courseware implementation plan, including train-the-trainer considerations and network installation requirements.

5. Develop module and lesson level criterion tests (pre and post), based on validated JPMs. Tests will require the student to certify (or reject) cases for the BVA, within time limits.

6. Develop, trial, validate, and deliver six hours of ICW integrated with approximately 40 case studies, lesson plan, trainee guide, and electronic job aid / decision aid. Develop and deliver validation plan and validation report. Deliver all software files for life cycle management of the courseware. All courseware will be delivered to the desktops of the personnel who perform the task trained by the Appeals module.

Instructional Strategies

Two major sets of instructional strategies will be applied in phase three:

Cooperative Learning. Based on three years of study of research into current adult learning theory and practice, 20T directed the contractor to specifically consider the integrated use of cooperative learning in ICW and case study lessons, wherever possible. The small group structures developed by the Center for Cooperative Learning at the University of Minnesota are particularly applicable to high-cognitive content. See Johnson and Johnson (1989) and Johnson, Johnson and Smith (1991) for further information.

Cognitive Strategies. Cognitive science also has both theoretical and practical contributions to make to the Appeals module. For example, Reigeluth and Nelson of Indiana University (1996) recently described appropriate instructional strategies for problem-solving tasks, at the Fort Knox Training Development Symposium. Also at the symposium was Dr. Anne Bednar, who provided specific guidelines on using case studies to achieve meaningful learning and thereby enhance training transfer (Bednar, 1996). The contractor for this phase has been specifically directed by VBA to research and implement these and other theorists in the lesson designs.

Status

Phase three is ongoing. It is scheduled for completion by March, 1997.

Cost and Schedule

Projected cost for phase three is $221,000, including all expenses. Phase three is scheduled for completion in six to eight months.

Budgeting

After completion of phases one and two, approximately $170,000 was left from the original $400,000 provided to the federal contracting agency. The contractor's estimate exceeded this amount. The shortfall was eliminated by shifting some travel to VBA personnel (funded by 20T) and by added

contract funding from 20T. The decision by 20T to use its own funding in this phase and the next phase, in order to supplement sponsor funding, was a significant factor in gaining credibility for the program and winning organizational commitment to long term funding and maintenance of the training system.

Acquisition Strategy

Due to the fact that most of the phase three funding would come from the original $400,000 obligated through the interagency agreement, VBA placed phase three through the federal agency contract, simply modifying the agreement to add the additional needed funds. However, VBA required that the agency move phase three to a different contractor on the agency's list.

Lessons Learned

1. Working with the program sponsor to identify high priority performance deficits which directly impact organizational goals and metrics increases commitment to the training effort.

2. When a clear link exists to organizational goals and metrics, the sponsor is supportive of "doing it right," i.e. investing the time and funding required to build valid and reliable tests, and to trial and validate lessons.

3. One advantage of the federal contract vehicle used by VBA was that because it is a revolving fund by authority of U.S. Code, agencies using that vehicle can "add new money to old," e.g. FY 96 funding can be added to FY 94 funding.

4. Current instructional theorists can provide specific, practical guidance for the design of adult learning lessons. It is up to Government personnel to maintain knowledge of such advances and require application in the design of training programs.

PHASE FOUR--DESIGN AND DEVELOPMENT OF A NETWORKED, MULTIMETHOD, TRAINING, PERFORMANCE SUPPORT, AND CREDENTIALING SYSTEM

Phase four is designed to provide an effective and efficient rating training, performance support, and credentialing system for use throughout VBA .

The performance needs addressed by this phase are the requirements to reduce rating specialist training time, increase the rate of claims processed yearly, reduce unit costs for each claim rated, and install a VBA-wide training and credentialing system for training of new rating specialists.

Existing training

Existing training is conducted via on-the-job training and classroom training. Training programs vary from regional office to regional office, but require up to two years to complete. No systematic evaluation or credentialing program is in place.

Activities and Products

Activities and products for phase four are very similar to those listed for phase three, with the addition of classroom lessons and videoteletraining lessons to the media mix. An initial conceptual media mix for this phase is as follows: 230 hours of ICW, 199 hours of case study work, 35 hours of classroom instruction, 24 hours of videoteletraining , using VBA 's one way video, two way audio system, and 2 hours of linear, production quality videotape.

It is envisioned that classroom lessons will be of two types. First, initial classroom sessions will allow live instructors to present an overview of the rating specialist job, thereby providing a cognitive framework for future lessons, and meeting affective objectives relating to modeling and self-efficacy. These classes may be conducted at the region or area, or at the Baltimore VBA Academy or the Denver Annex. Second, advanced level classes will be conducted at the Academy or the Annex for the discussion of complex special issues, such as Persian Gulf claims. Advanced classes will also encourage the students to build a network of support among other rating specialists. It is envisioned that additional advanced training--either classroom or videoteletraining may be developed directly by VBA, outside the scope of the contract. This additional training is not reflected in the figures just listed.

Instructional Strategy

In addition to cooperatively structured ICW and case studies, VBA envisions individually structured ICW to train medical information, as well as classroom and videoteletraining applications of cooperative learning, adult facilitated learning, and experiential learning. All of these strategies will be applied within a clear but complex and rich framework of specific objectives and criterion testing.

It is anticipated that the training period will be reduced to six to eight months of half time training (four hours per day), with the remaining four hours per day spent rating actual cases.

Status

Phase four is ongoing.

Cost and Schedule

Projected cost for phase four is $3, 130,000. Projected schedule for phase four is 39 to 51 months, depending on actual award dates of each delivery order.

Budgeting

20T provided 50% of the funding for this phase, in the first two fiscal years of its funding. This degree of commitment by the training organization helped develop credibility with the sponsor. Funds for this phase were included by the sponsor in multi-year budget projections included in the VBA business plan briefed to the Under Secretary. The Chief Financial Officer of VBA required clear and measurable traceability from the training program expected gains to VBA's GPRA objectives. This phase was supported by cost-benefit analysis demonstrating improved employee development and lower unit cost for ratings, both of which were GPRA objectives for VBA.

Acquisition Strategy

VBA elected to acquire this phase through an existing Government indefinite delivery indefinite quantity (IDIQ) contract. The contract is a cost-plus-fixed-fee type, and it allows for incremental funding of delivery orders. Cost to VBA was 5%.

Lessons Learned

1. Working with the program sponsor to identify high priority performance deficits which directly impact organizational goals and metrics increases commitment to the training effort.

2. When a clear link exists to organizational goals and metrics, the sponsor is supportive of "doing it right," i.e. investing the time and funding required to build valid and reliable tests and conduct trials and validations of each lesson and module.

3. Including valid tests and provisions for proving instructional effectiveness and efficiency adds cost to the program; however, in today's environment of GPRA accountability, such measures can provide valuable ammunition in annual battles to maintain program funds--if the program manager works with the sponsor to help translate training language and data to organizational "bottom line" language and data.

4. Current instructional research provides specific, practical guidance for the design of adult learning. The instructional technology breakthroughs identified are just as effective as more glamorous and visible delivery technology breakthroughs, and cost a lot less.

THE FUTURE

20T intends to extend all aspects of the current program to other occupations of the agency. Similar programs, on a smaller scale, are already underway for the loan guaranty and insurance business areas. We also intend to gradually integrate electronic performance support systems with VBA-developed occupational software, as requested by the Under Secretary for Benefits. Finally, VBA envisions significant expansion of videoteletraining courses, now that installation of a videoteletraining network has been completed.

SUMMARY

This paper has first, discussed the path taken by a non-DoD Federal agency to introduce instructional technology into its employee development and training; second, provided practical information concerning a major program (actions required, products required, instructional strategies, costs, schedule, budgeting strategies, and lessons learned) ; third, described a networked, multimedia, multimethod, training, performance support, and credentialing system now being developed by VBA .

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