

Training on-the-go

... the new reality

Readily available and cost effective new technologies make it possible to apply simulation to all phases of training – from development through to delivery, management, and training support. These technologies can provide training in both the typical classroom setting, and “on-the-go.”

Traditionally, training programs have been designed using an instructional system design process that relied on the experience of training managers and their historical knowledge of washout rates, failures, and remedial training needs. But what about changing needs and the desire for mission rehearsal prior to deployment? And, how do you incorporate new training techniques into a previously-developed curriculum? How will new training methods affect the desired outcome or learning achieved? Add to this the ever-changing environment of shifting funds and staff – and it's easy to understand why there remains reluctance on the part of commanders to shift from traditional training methods.

For these reasons and others, a “system of systems” to provide comprehensive alternative training techniques to the full-spectrum of training would greatly assist any echelon of command. Today, the training industry is being challenged

to provide military leaders with an integrated learning environment to manage and deliver training in a “blended” format. Blending is the process of providing the right training to the right people in the right amount at the point of need.

Simulation technology can now give commanders the opportunity to recognize, interpret, and make decisions quickly and correctly in complex and dynamic situations. This is becoming more important, especially with increasingly shorter deployment notifications and reduced training time.

A viable training system must do more than simply track the progress of students. It must provide individuals and teams with a robust and flexible learning environment that builds on traditional legacy instructor-led classrooms, computer-based training, reconfigurable desktop simulators, full-mission simulators, and live training scenarios. Training can be focused on simulated learning scenar-

ios that provide experience and performance feedback in the cognitive skills needed to perform mission operations. It can also provide flexible and innovative instructional strategies that enhance critical cognitive skills.

In today's world of rapid deployment and lack of time to train, commanders must consider the right training for the task. Is a multi-million dollar simulator needed when a simpler, more economical trainer can impart the skill and knowledge required? What's more valuable – classroom training, or a simulation that provides a level of mission rehearsal? What about using a deployable system? Can a student gain the correct level of proficiency en route to a deployment from a training program using a laptop computer?

Another issue facing today's commander is working with other units without participating in joint training programs. By leveraging the power of the Internet, netcentric training might solve the problem by allowing units to train together virtually prior to deployment.

Various training programs are becoming available, but many are fragmented and do not use a common language. This makes it difficult to integrate the programs, and netcentric operations become very challenging. An ideal system is one designed with separate components that can be used individually or in subsets (for small training programs), or as a complete system – and each system should be capable of connectivity to manage service-wide or complex training programs. Four functional areas should be available:

- Training Analysis and Design System;
- Training/Learning Management System;
- Training and Rehearsal System; and
- Logistic Support System.

Training Analysis and Design System (TADS)

A TADS would provide a modeling and simulation service to supports the design of the training system. Ideally, it will utilize the output of a previously accomplished training needs analysis, or the data from an existing training establishment. It should provide a “what if” capability to alter training needs in order to maximize training options. The TADS modeling and simulation tools must be capable of analyzing the training data, and providing reports to demonstrate the flow of the planned training and any issues or bottlenecks caused by the outside constraints. Tools should be available to optimize the



training resources based on the prioritized requirements to create the most effective and efficient use of limited assets while achieving the training objectives.

Training/Learning Management System (T/LMS)

The T/LMS would manage both the training environment and the learning quality of the student by integrating the Training Management System (TMS) and the Learning Management System (LMS) components. While the TMS schedules and manages the training resources, the LMS communicates data with the TMS and serves as the student's portal to the learning environment.

The T/LMS should be a modular, web or desktop enabled system that can be integrated and tailored to specific user requirements and it should also be effective as a stand-alone module or to operate in a netcentric environment. Automated tools should be available for the management, operation, administration, and maintenance of the elements of training systems. These tools would support the students, instructors, scheduling, courseware, and support personnel needed for the training. An effective T/LMS must be intuitive and user friendly – supporting each aspect of managing, operating, administering, and maintaining the training program. It needs to be capable of tracking and managing the training systems, including processes, resources, and equipment. The T/LMS must also be capable of supporting: lesson and training device scheduling; scheduling at the individual student or class level; recording of student performance; and tracking of instructor currency in training requirements. Finally, it should be SCORM (Shareable Content Object Reference Model) compliant and provide a courseware and content development, management and distribution environment for the training manager as well as be able to interface with current training systems.

Training and Rehearsal System (TRS)

Recognizing the escalating capacity of simulation training and learning technologies, a TRS should revolutionize the way students communicate, study, and train. It should be a “laboratory” of sorts that will streamline training and mission rehearsal by integrating the whole “content world.”

All data should be dynamically updated on a “push” or “pull” basis from a central database to improve communication, share knowledge among community

members, and apprise commanders and team members alike of critical information. The TRS should be a critical component to provide training managers and commanders with the ability to track student progress, as a group or individually. If, for example, one student misses a question on an assessment test, it may indicate a deficiency in a particular area. If, however, the entire class misses the same or similar questions, it could indicate a deficiency in the training method. Data would flow on a regular basis to allow for rapid assessment of a problem and quick changes in the curriculum if necessary.

An efficient TRS would allow individual users to have access to all of the training and information they require via their own PCs or an established network set up for shared use. The organization would be provided with the tools to manage these assets over LANs or secure Web connectivity. This framework could also integrate other training devices, including desktop reconfigurable, part-task trainers, and full-mission simulators to provide a fully integrated training environment.

A “learning-by-doing” methodology enhances knowledge retention.

The TRS would implement a “learning-by-doing” methodology. Rather than passively memorizing information, students would actively integrate with pre-defined scenarios, and consequently enhance knowledge retention. This multi-level “rehearsal,” utilizing skills gained from knowledge transfer from the training elements, would allow learning to occur for a complete cycle. The personal training devices can be hosted on laptops or desktop PCs, providing the student the opportunity to interactively rehearse anytime, anywhere, which helps to reinforce the learning level achieved by the trainee. The TRS would enable students – individually or as part of a group – to engage in simulation, training, and mission rehearsal activity at their own pace or networked together in organized training missions. The TRS should also provide the capability to download training missions from other part-task, embedded or full mission simulators for review and debrief in the PC environment.

Logistics Support System (LSS)

The final component of the training system must be able to track the training assets, be it aircraft, tanks or simulators. It must, of course, integrate with the other systems and provide information such as required maintenance, out-of-service equipment and near real-time or real-time equipment status. Therefore, a logistic management system for a training environment must be incorporated into the overall integrated solution that provides interactive data to the training management environment. This would allow the T/LMS to receive up-to-date automated information about resource availability, scheduled maintenance, and repair actions and adjust the training schedule as required – and is essential to maximize training on a rigid schedule.

Using such an integrated training system, commanders and training managers would have the opportunity to obtain accurate information, manage their ever-changing training environments, and improve the effectiveness of learning. Coupled with ease of use, the training analysis and design system would revolutionize the way training programs are developed and implemented, reducing the risk and increasing confidence in the effectiveness and efficiency of the training system design. The integrated training system will provide a framework for training, pulling together available components to provide the end-user with the ability to provide any type of training, from aircrews and maintainers to ground and maritime troops – and beyond.

The training industry is facing these challenges and providing integrated solutions today. The future of delivering training appears to be more efficient and increasingly more automated. Enhanced learning opportunities, intelligent tutors, simulation, and instructor stations are ensuring that training objectives are achieved, providing the necessary skills and familiarization to perform missions and return safely home. **FL**

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