

WEAPONS OF MASS INSTRUCTION

Frank Anderson and his team at Defense Acquisition University have created possibly one of the top corporate universities in America. But DAU's biggest success may be its strategy for growth. At a time when the economy has caused many corporate U's to put long-term goals on hold, DAU is training more people by enhancing its services, despite a shrinking staff and a stagnant budget. Oh, and did we fail to mention that DAU also built its own LMS that could become the standard used across the entire federal government?

BY JOEL SCHETTLER



"This is where the plane hit," says retired Air Force Brigadier General Frank Anderson as we turn a corner down another lengthy, nondescript corridor at the Pentagon. Memorials, photos and other artifacts hang on the walls, reminding passersby of the 184 lives taken

here during the terrorist attacks. Yet, aside from a newly installed escalator and emergency lighting along the floors, the hallway is as it once was. Only the smell of fresh paint and a fleeting glance at exposed ventilation ductwork inside the few remaining unfinished rooms hint at the devastation caused when American Airlines Flight 77 crashed into the world's largest office building at 9:38 a.m., Sept. 11, 2001.

Tall and powerfully built, Anderson is smartly dressed in a dark suit, white starched shirt and the muted red tie that seems standard-issue among top government leaders. His strong presence and quiet resolve exude "military," even though the general now works out of uniform. Anderson serves as president of Defense Acquisition University (DAU), the corporate university charged with training the more than 129,000 members of the Department of Defense military and civilian workforce serving in acquisitions, technology and logistics (AT&L) positions worldwide. Working in every branch of the armed forces, AT&L personnel design, build or buy the military's war-fighting equipment—everything from the smallest firearm to the largest, most sophisticated aircraft carrier.

It's a big job. During fiscal year 2003, members of the AT&L workforce will spend nearly 65 percent of the \$365.6 billion defense budget. Aside from expenditures for health programs, a small portion for military construction and housing, and salaries for the more than 3.3 million civilian employees and military forces, AT&L controls the rest: \$245 billion, which includes money for research and development, procurement, and operations and maintenance.

Along with a beleaguered economy, the nation grapples with the continuing war on terrorism. And while this corporate U must be at the peak of its game during such a crisis, it must also function in a political climate that calls for every government agency to fiscally operate more as a business. Yet, despite coping with a flat budget, mandates to train a growing workforce and demographics that would frighten the most stolid CEO, DAU is more than two years into its own reinvention that is now starting to bear fruit. In the past 18 months alone, the corporate U has created a new training strategy, realigned its organizational structure, reengineered its curriculum, and begun to blend its training offerings within communities of practice and an extensive knowledge management system.

Turning down another vast hallway, Anderson and I are on our way to talk training strategy with some of the top officials at the Defense Department. It's a topic close to Anderson's



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heart. Since becoming DAU president more than two years ago, he has led the corporate U through an entire restructuring process—a response to what some in the department might characterize as a workforce's perfect storm.

A Demographic Bubble

Since the corporate U's inception in 1971, its charge has been to certify members of the AT&L community in any of a dozen career fields—purchasing, auditing, program management, and acquisition logistics, among others. "We are not building theoretical capabilities," says Joseph Johnson, director of DAU's Strategic Planning Action Group. "We are training so that AT&L employees are better at their job the very next day. A training organization isn't driven by education. Our charge is practitioner training, which is more toward providing functional experience."

While ever-demanding AT&L jobs put DAU to the test when it comes to providing the most up-to-date training, the corporate U may face its greatest challenge in the very near future. The demographics tell the alarming tale.

By the end of this year, partly due to reclassification of the AT&L community, the workforce will grow to as many as 138,000, an increase of nearly 40 percent in three years. Such increased training demands are further compounded by the fact that the average AT&L employee is a Baby Boomer in his or her mid-40s. Attributed by some in the department to defense budget cutbacks made over the past decade, more than 50 percent of Defense Department personnel will become eligible for retirement by 2005. By 2007, the number reaches a staggering 70 percent.

As the workforce grows, and as more students seek certifi-

cation in more than one career field, DAU's tasks will only grow larger. Additional certification tracks will soon be added, such as product support logistics and facilities engineering. When tallied, most of the activity between 2000 and 2003 will be driven by new hires, as demographics point toward a large turnover among the ranks.

Political issues must also be considered. At about the time DAU was reevaluating its training approach, a new president moved into the Oval Office—an administration openly supportive of a strong military, but also one that adheres to strong business management principles and accountability for every tax dollar spent. Incoming Secretary of Defense Donald Rumsfeld reflected the spirit of change in his confirmation testimony to the Senate Armed Services Committee on Jan. 11, 2001: "The legacy of obsolete institutional structures and processes and organizations does not merely create unnecessary cost, which of course it does; it also imposes an unacceptable burden on national defense."

New Defense Department budgets come with administration policy asking that dollars be moved "from bureaucracy to the battlefield, to include progressing toward reducing all headquarters staff by 15 percent." (DAU's operating budget has remained below the \$100 million-mark since 1997—a figure that also includes travel budgets for all students taking onsite courses at any of the corporate U's five regional campuses. During this same time period, its headquarters staff has dropped 24 percent.)

Michael Wynne, principal deputy under secretary of defense (AT&L), says the challenge comes in getting the training done "on budget, on schedule and on requirement." A graduate of the U.S. Military Academy, Wynne is a longtime military pro-

Bridging the Digital Divide

A government agency builds its own knockout LMS using taxpayer dollars—what now? As DAU completes security checks and load testing on its homegrown LMS called ATLAS Pro, the questions remain. Will other government agencies be able to use the product? Should others? And at what cost?

“If it helps performance and learning, then we just go from there,” says Bob Ainsley, DAU’s acting provost. “My only problem, personally, would be that we would give the LMS to some company and then they would sell it. Our idea is that learning should be open to all, particularly students. It can only improve performance and make them better citizens down the road. In terms of what the LMS can be for everyone, I think more globally.”

Since the product was developed within the government, if other agencies have similar needs for an LMS, they are compelled to use ATLAS Pro. Already, more than

50 federal government agencies have shown an interest. Others making inquiries regarding the LMS include universities, small colleges, a language school, consultants, a national bank, as well as corporations large and small. The list is growing.

Schools should immediately be

included in the mix, says Chris St. John, advanced distributed learning specialist at DAU. By sharing a highly sophisticated and adaptable learning tool developed in the public domain, St. John believes the LMS’s impact will be far wider than first expected. “The phenomenon referred to as the ‘digital divide’ is very real,” he says. “Small colleges don’t have the money to build or buy an LMS. With ATLAS Pro, we are leveling the playing field. We say we are building a weapon of mass instruction.”

Imagine, for example, if a prosperous school district in Fairfax County, Virginia was able to share course materials for just one kid attending a rural Virginia school, says Ainsley. Or picture the implications if a small college in Dayton, Ohio, was able to operate a course from a school in Irvine, Calif. “We are trying to diminish this digital divide,” he says. “We’re now developing the capability for the ‘have-nots’ to match the ‘haves.’”

DAU has already developed a working marketing plan. With the help of the National Technical Information Service, a government agency with experience licensing products developed within the government, DAU will create what it dubs a “knowledge franchise.” Under such an agreement, the only costs to use the LMS would be operational and maintenance. And since the prod-

uct is being created in an open-architecture format, users will be able to adapt the product as they see fit. However, DAU would maintain control over the baseline software, says St. John. “In exchange we would ask that users would let us know what they are doing to the program, so that everyone can take advantage of the syndicated development.”

The implications for the education and training markets could be immense. By having a standard LMS made readily available, speculates Craig Lush, DAU’s CIO, companies and agencies will no longer concern themselves much about the system working behind the scenes—much like email today. Such a shift could make content king again, both in development efforts made by corporate universities and in what vendors take to market. DAU itself will continue to spend what it did each year getting ATLAS Pro online, says Lush, only the outlays will be directed toward course development and buying content.

During load testing, ATLAS Pro withstood traffic equivalent to 74,000 students simultaneously using the LMS. It didn’t crash. At this writing, DAU has set March 3 as the target ship date when the product will be ready for others to use.

“This will affect every corporation, and the public as well,” says St. John. “We have done some very exciting things, because the AT&L workforce is mandated to receive such training and use the LMS. So we are constantly pushed on the leading edge. You will see stuff done here that others haven’t tried before.” And with a little luck, everyone will share in the reward. —J.S.

curement veteran, managing weapons system development at Lockheed Martin and most recently at General Dynamics, where in 1999 he retired as senior vice president.

“We want our people to be fair, to have a business understanding, to know when value is being offered and when value is not being offered,” says Wynne. “I think from the business sense we have to value every taxpayer dollar and leverage it. And we frankly teach that so we learn it and have great respect for it. So, making our armed forces more credible because our taxpayers see that we are using the dollars right, making our forces more effective, and getting them the material on time, on quality—these are the principles that we need from our business and our partners. And we are responding accordingly.”

When discussing the best use of tax dollars to train a workforce to succeed in an increasingly demanding environment—a recurring theme during our conversations—Anderson’s military resolve becomes most apparent. “It boils down to the fact that the rules have changed,” he says. “We’re in a global world where learning provides a competitive advantage, whether you happen to be in corporate America or operating in the federal government.”

While distant from the frontlines, DAU’s mission has certainly taken new urgency as a result of America’s ongoing war on terrorism. “One of the things about being in an engagement,” says Wynne, “is the things that you rely on as a war fighter: a meal ready to eat, a poncho that doesn’t leak, a rifle that works, when you want it to—all the way up to a satellite or ballistic missile that has to work. The acquisitions people must also see their mission very clearly: to support that fighter and deliver quality goods.”

Still, it has not been only political ideology or wartime anomaly that drives DAU to evolve. Where others may retrench to tried-and-true practices or trim operations to the bone during times of budget cutbacks or national crisis, DAU is taking risks and building tools and policy that it bets will prove to be a winning formula.

To be sure, efforts to improve training can fall short, but more is at stake than ROI. For DAU, failure to attempt enhancing its wares carries an even greater risk. “What 9-11 did was remind everyone of how important the business of national security is—and that’s for every employee in the organization,” says Anderson. “We are in the business of being dominant in our marketplace; being second best isn’t good



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Seeds Of Change

“In the 1990s, we did a good job of developing courses,” says Johnson. “But we asked ourselves: What is the corporate university doing for you when you aren’t here and in a class? Our answer: not enough.” Studies showed that the corporate university could better use technology to deliver training.

The effort to create a Defense Department workforce for the 21st century began in earnest in 1997 when the department established the Advanced Distributed Learning (ADL) initiative, a collaborative effort between government, industry and academia to create a learning environment that would leverage existing practices and take full advantage of emerging technology.

At DAU, the ADL initiative set the challenge and helped shape policy. It called for leaders to make smart use of technology, expanding the corporate university’s reach while giving students and supervisors more control over their training solutions. Also, expectations held that knowledge management would play a complementary role to e-learning, an integral part to a new customer-focused training concept.

Faculty members realized that workforce requirements for the coming 21st century would soon outpace what the traditional instructor-led classroom environment could deliver. “To succeed,” says Anderson, “we recognized that we had to

become significantly better at getting the right information to the right employee at the right time.”

That’s where Frank Anderson enters DAU’s history. Today, Anderson talks about the topic that’s near to his heart: strategy. “The strategy is probably the single most important document in transforming the university,” he says. “It’s a huge mistake to take off on the transformation without some idea of what it is you’re trying to change.”

As the newly named corporate U president, Anderson’s first order of business was to rethink the school’s line of attack. While he admittedly didn’t have much experience governing a training organization, especially as it related to technology, he nevertheless oversaw the team that created and implemented the corporate U’s new strategy. His planning involved all 540 members of DAU’s military and civilian personnel—from instructors and curriculum designers, to the IT computer wizards who work at the organization’s headquarters at Fort Belvoir, Va., as well as at regional campuses located at Patuxent River, Md.; Dayton, Ohio; Huntsville, Ala.; and San Diego.

This start-from-scratch approach allowed DAU to create something special, says Anderson—the Performance Learning Model (PLM). Under Anderson’s supervision, corporate U staff members were able to construct a simple diagram of what the corporate U provided the AT&L community. Basically, the PLM depicts the elements of an employee’s certification process—three stages of certification training combined with work experience—along with the supporting knowledge-sharing elements, such as communities of practice and varied e-learning support modules, mapped alongside.

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With the DAU Performance Learning Model in place, everyone on the team—from subject matter experts to IT programmers—was given a framework on which to hang their ideas. "Many training organizations get trapped by the fact that they are teaching," says Anderson. "They don't think about aligning assets or their learning products and services, or think about their mission from the same perspective as a business: Who am I trying to satisfy? What do they value? How do we add value?"

Even in 1997, leaders foresaw that the advent of the Internet would revolutionize workforce certification, recalls Chris St. John, ADL specialist at DAU. E-learning would one day become a valuable tool, but only if it supported the corporate U's goals.

"We knew then that we would achieve a grand economy of scale by having our students complete their fundamental courses online," says St. John. "But in exchange for this convenience, we knew that we would have to create an automated functionality that would not only track the progress of tens of thousands of simultaneously 'logged-on' students from anywhere in the world, but also provide faculty and administrators with fundamental information about delivery, a variety of metrics and risk-management feedback mechanisms."

Yet, before any e-learning plans could bear fruit, DAU would need to acquire a precise management system to administer the large amounts of student and course data. An important question emerged: Do we buy an LMS off the shelf, or build one of our own?

To Build Or Not To Build?

If e-learning was to play a crucial role in DAU's new training strategy, then so too was the LMS. Not only must the LMS be rigorous enough to handle enormous traffic



Frank Anderson, DAU president, and Michael Wynne, principal deputy under secretary of defense (AT&L).

around the clock, it must also be able to measure student activity to the required minute detail.

In 2000, as Anderson set out to reinvigorate DAU, it just so happened that an LMS project was already in the works. After reviewing the LMS market for nearly six months, with the help of consultant Booz Allen Hamilton, McLean, Va., DAU had decided in 1996 to set out on its own to construct an LMS. In-house programmers and consultants built a rudimentary LMS program called Operating Support System (OSS).

In 1998, DAU put up its first HTML course, using Macromedia's Authorware and Flash. "Certainly as the technology matured and as changes arose in programming technologies and educational taxonomies matured," says St. John, "we realized that we had to keep up with the times and their requirements."

After five successful years operating their homegrown LMS, DAU leaders again looked to upgrade—this time keeping the new performance learning model, and all it entailed regarding technology strategy, in mind.

"Over the years the sheer size of OSS became intimidating," says St. John. "We had 1.5 million lines of code and the maintenance costs were exorbitant." For years, DAU staff had kept a spreadsheet filled with the latest data regarding vendors' LMS product offerings and their capabilities. Faculty spent an entire year evaluating products available on the market. In 2001, the leading LMS vendors were invited to deliver presentations about their products to aid DAU in its search, which focused on many specific criteria, including cost.

DAU spent about \$6 million in annual maintenance, upgrade and hosting expenses to operate OSS. Nevertheless, vendors' specific government price structures for an LMS of the type the corporate U required would have fallen between \$6.5 million and \$7 million—without any modifications.

"Also, we had many interfaces and unique needs, as well as unique class work," says Keith Sinner, CIO for the U.S. Department of Commerce, National Technical Information Service, and co-consultant on the project. "It's not that all of the vendors we tested couldn't do it. Sometimes it was just cost—a cost to build and a cost to maintain. We would have ended up spending six times what we did to create our own. Some of the systems had things the government just didn't need. And we weren't just looking at how many students the

systems could handle, but also whether they could track down to the level that each person has taken specific courses.”

A more recently developed ADL component calls for e-learning to be constructed using the sharable content object reference model, otherwise known as SCORM. Once fully realized, such structure will allow courses to be durable, accessible, and best of all, reusable across all learning platforms. “In an ADL environment, you are looking at front-end costs and sharable content objects (SCOs) to meet the needs,” says Craig Lush, DAU’s CIO in charge of the project. “Our effort we put into training may be unique to government. The ability to accommodate all-comers is critical.”

Also desired in the new LMS system was legacy compatibility, says Lush. “We can’t redo all courses for compliancy.” At the time, many vendor LMS systems didn’t possess the required functionality, recalls Lush. “Plus, there is no guarantee that certain vendors will be here in two years,” he says. “I wouldn’t buy anything from anyone who couldn’t say whether they were about to be leveraged or sold.”

In September 2001, with costs in mind, along with its functional criteria and security requirements, DAU again opted to build its own LMS, this time called ATLAS Pro, a highly functional program based on an open architecture Java format. Already many of the basic registration, course tracking and delivery systems are in place. Within the next

plete learning style and knowledge assessments. Within the LMS, intelligent tables will use the student data to create individual certification paths based on how students learn and on what they already know. As the DAU vision articulates: “Just the right content, at just the right time, on just the right device, in just the right context, delivered in just the right way.”

“All of these individual tools were elements in implementing our performance learning model,” says Anderson. “We didn’t go out trying to promote technology. We weren’t moving to try to become an e-learning organization. We were trying to create a performance-learning environment for the AT&L workforce. So it’s not ‘e’; it’s not knowledge-sharing. These are innovative elements, supporting tools that provide us with seven-day, 24-hour capability. It’s: How do we become a world-class learning organization?”

Currently, 18 courses required for certification and mandated by Congress are online. “We can track to the level where we can look at an individual student’s every question on every test,” says Lush. It’s a design model still in its infancy, but Lush believes online learning and learning management will one day be boiled down to the purest simplicity.

“People are trying to understand an LMS,” says Lush. “One large company I know of—and I won’t mention the name—has more than 40 LMS systems running simultaneously across the entire organization. Here, we want one system.”



four years, it will break out features that will place the corporate U squarely in front of its field—interoperable platforms, reusable learning objects, global knowledge databases, digital knowledge repositories, virtual libraries and simulations.

Other technical features will include a mobile player, automatic e-mail generation, and help wizards that will walk students through course registrations. “A laptop in the foxhole is a possibility,” says Lush. “Lots of commercial companies might say that today, but you have to scratch beneath the surface.”

As part of a vision for 2007, the entire learning system, LMS and all, will merge to create a single personalized learning strategy for each AT&L employee. Incoming students will com-

Already ATLAS Pro has received great interest from several government agencies, but its use could soon spread, much farther (see sidebar, “Bridging the Digital Divide”).

The sharable content object model can also be adapted to DAU course design on a larger scale, says John Hickock, DAU knowledge management officer who developed the first DAU-based community of practice for program management and contacting and logistics. How a knowledge object actually is defined is where knowledge management comes into play. The issue is building communities of interest, focusing on what DAU calls “golden sources,” or information that is under authoritative control. Another example of this



is the repository of mandatory AT&L policy that was launched during my visit over Halloween.

"From a knowledge management perspective, an SCO could be a document or a guidebook that DAU develops," says Hickock. "It could even be a person—all the way up to a community of practice as an object; anything that can be utilized. And it's not always something that you can hang onto an LMS."

See It Through

"In the past, people would look at change and ask the question: When is it over? To be in a global economy, change is a way of life; it's a constant state," says Anderson. "Learning organizations must develop the infrastructure, the processes and the internal cultural attitude to deal with this rapidly changing environment. And we're still learning how to do that, but I think we are up front and better than most."

Although all at DAU and the Pentagon are quick to acknowledge teamwork and group effort, it's clear that Anderson's ascendancy to DAU president in 2000 marked a turning point in the corporate U's transformation. Anderson himself is genuinely too modest to ever suggest his role outshone that of other professionals' contributions. As in most things military, it's a team effort that gets things done.

Yet it's hard to ignore from the data and the anecdotal evidence that real change came when Anderson led the strategic planning process team to reengineer DAU initiatives. "Frank Anderson is a leader who is committed to see the strategy through and deliver," says Donna Richbourg, director of acquisition initiatives for the Department of Defense. "If we had to hand it off to someone else at any time, we would have had a rollback to what we had before."

In 1998, only 2 percent of DAU grads attended an online training course; by the end of fiscal year 2002, that number increased to more than 40 percent. During the current fiscal year, DAU will deliver more than 3.7 million hours of instruction, of which nearly 1.4 million will be online. DAU Web sites receive nearly 2 million hits per day, making it one of the busiest, most visited education sites in the world.

"I believe that we have gone into the marketplace and have taken the best practices that we found in the industry and have combined that with the best practices that already existed in the Department of Defense. We believe that we have taken on and improved every product and service we have at the university," says Anderson. "That's what we do with 'e'. We have completely reorganized the university, without making increases in funding. We've made it happen. But it's the speed that we've made the transformation that is the bottom line."

The numbers speak to the fast development. The student population growth from 1998 to the number DAU predicts it will serve in 2003 represents an increase of 67 percent. While the corporate U has been taking on more responsibilities, it has accomplished its success with limited resources. In 1997, nearly 34,000 students graduated from certification programs, while the staff of 708 operated with a \$94.7 million budget. By 2002, 50,000 students were graduating each year from the corporate U's programs, while the staff and faculty ranks shrunk 24 percent to 540 and the budget only slightly increased to \$98.5 million.

By providing some of the core certification classes online, travel expenses were reduced from \$33.7 million to \$20.3 million. Yet, due to efficiencies gained in e-learning efforts, student throughput increased 48 percent. The cost-per-graduate dropped 33 percent. By one measure, says Anderson, efficiencies gained in training, spread across the vast workforce, amounted to more than 300 years returned to the workplace.

"We worked extremely hard to take our blinders off so that we wouldn't get trapped by what we had always been doing in our past," Anderson says. "The things we've done in e-learning: I think we have moved faster than almost any organization, or private sector company. Yet, I don't believe there is a difference between government and the corporate world. If we can do it here, you can do it in any organization, as long as you remain committed." ■

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