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**SECTION 1: LEADERSHIP**

**Introductory Remarks from the TRADOC Capability Manager, Ms. Helen Remily**

**SECTION 2: RESOURCING AND DEVELOPING INTERACTIVE MEDIA INSTRUCTION (IMI)**

- **Managing Your DL Program to Ensure You Are Leveraging the Army's Resources For Continued Success/ Funding Of Your DL Army Learning Model (ALM) Initiatives Beyond 2015**
- **IMI Development: Are You Really Ready to Proceed and Succeed?**

**SECTION 3: TRAINING COLLABORATION**

- **Achieving Excellence Through Collaboration**
- **COLAB Supports Tiger Team Development**

**SECTION 4: TRAINING DEVELOPMENT**

- **Instructional Design In Online and Distance Learning**
- **Multiple-Choice Tests Can Measure More Than Knowledge**
- **Distributed Learning Government Acceptance Review: Ensuring Your DL Passes the Wickets**


## SECTION 1: LEADERSHIP

### Welcome to Edition Fourteen of the DL STAR!

Hello everyone and thank you for your continued support of the DL STAR! We are now in our 14th edition and it is only through your willingness to invest the time and effort in sharing information that we are able to continue publishing. Thank you for continuing to deliver quality articles that enhance the mission and share how you and your organizations are helping to transform the way the Army trains, educates, and learns. Seeing the results of colleagues in the DL community is exciting and motivating!

Because we continue researching ways to improve how we deliver content at the point of need, we drafted a TRADOC Mobile Learning (mLearning) Strategy, which is now in staffing for approval. The strategy focuses on learning leveraged by technology and incorporates the

uses three Lines of Effort, which serve to guide the implementation of the strategy: Integrate mLearning Processes, Develop Robust and Relevant mLearning Products, and Enable Ubiquitous Access to mLearning Products. The mLearning Strategy provides the framework that will enable, support, and lead, where applicable, the accomplishment of the Army Campaign Plan objectives and the TRADOC Strategic Plan themes.

This edition of the DL STAR provides information on three areas: How to resource and develop IMI, results from collaborative training, and strategies for training development.

The first article on *"Managing Your DL Program to Ensure You Are Leveraging the Army's Resources For Continued Success/ Funding Of Your DL Army Learning Model (ALM) Initiatives Beyond 2015"* was written by Bennita Freeman, Distributed Education Branch (DEB), Digital Development Division (DDD), Signal Center of Excellence (SIGCoE) Directorate of Training. It speaks to the accomplishments of DDD's overall mission to support the Signal Training Community with implementation of ALM DL initiatives.

The second article titled *"IMI Development: Are You Really Ready to Proceed and Succeed?"* was written by AJ Mason, SIGCoE. This article addresses ways to reduce potential problems when developing IMI.

The Learning Innovation Office, U.S. Army Intelligence Center of Excellence, provided the next two pieces, *"Achieving Excellence Through Collaboration" and "COLAB Supports Tiger Team Development".* Both written by Regina Albrecht, she examines the effectiveness of collaboration in a laboratory environment.

Tammy Bankus, INCOPD TRADOC, writes to the effectiveness of well written test questions in "*Multiple-Choice Tests Can Measure More Than Knowledge".*

Lastly Tamara Krepps, TCM-TADLP, explains the Army DL fielding process in "*Distributed Learning Government Acceptance Review: Ensuring Your DL Passes the Wickets".*

All the articles reiterate the TADLP focus—to provide Soldiers, leaders, and Army civilians persistent access to the highest-quality formal and informal training and education products and DL content in support of individual, institutional, and self-development domains. We continue to strive to establish a technology-enabled learning environment where training and education content is easily discoverable, accessible, functional, flexible, and trackable through multiple delivery means.

We encourage you to visit the TADLP website and join our Facebook and Intelink blog. We designed these sites to capture your knowledge and share it with other members of the DL

community, so please use these tools to share your opinions or ask questions.

If you have inquiries regarding this edition or would like to submit an article for the next edition of the DL STAR, please contact us @ usarmy.jble.tradoc.mbx.atsc-tcm-tadlp@mail.mil.

We are proud to serve and support!

Helen A. Remily
TRADOC Capability Manager
The Army Distributed Learning Program

*CAC-T manages development, resourcing, and integration of Army training, training management and training support requirements to train the Army units and leaders for decisive action.*

http://usacac.army.mil/cac2/CAC-T/

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**Managing Your DL Program to Ensure You Are Leveraging the Army's Resources For Continued Success/Funding of Your DL ALM Initiatives Beyond 2015**

One of the primary missions of the Digital Development Division (DDD), Signal Center of Excellence (SIGCoE) Directorate of Training is to provide oversight of Distributed Learning (DL) resources and provide technical expertise for the acquisition process for Interactive Multimedia Instructional (IMI) products and to be the SIGCoE's liaison office to TRADOC/CAC-T/TCM TADLP/TCM ATIS/ATSC for all Army Learning Model (ALM) initiatives pertaining to Distributed Learning (DL) and all audiovisual training aid development. The combined functions and oversight responsibility assigned to the office allows the organization to ensure all the SIGCOEs ALM initiatives pertaining to DL start and "remain" on track and are firmly aligned with Army programs of record ensuring the longevity and success of all DL ALM initiatives well beyond 2015.

Specifically, the organization does the following in the support of its mission:

- Conducts research on the application of new technologies/media/authoring systems and associated software applicable to extension/exportable training products.

- Serves as the SIGCoE POC for Distributed Learning (DL) via Coordination with Program Managers, TRADOC, ATSC, PEO STRI, Office Chief of Signal (OCOS), and school personnel on DL matters to include reviewing and staffing the DL Courseware Nomination Master List maintained by TCM TADLP and developing and updating the Fort Gordon Distributed Learning Plan.

- Interprets and distributes guidance from TRADOC, DA, PEO STRI, CAC-T/TCM TADLP/TCM ATIS and ATSC to support DL and IMI development for the SIGCoE.

- Serves as the Contracting Officer Technical Representative (COTR) and POC to TCM TADLP on contracted DL development efforts for the SIGCoE by the program.

- Develops policy and procedures for development of SIGCoE IMI products developed via the Combined Arms Products for Distributed Learning (CAPDL) Performance Work Statement (CAPDL) managed by TCM TADLP or in-house development.

- Serves as the SIGCoE Audio-Visual Program Officer (AVPRO) for the SIGCoE and liaison to CAC/ATSC on all matters pertaining to the DA Multimedia Visual Information Production and Distribution Program

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(*DAMVIPDP*).

- Coordinates the implementation of all Army Enterprise Classroom Program (AECP) initiatives.

The DOT has accomplished the following actions via the DDD in support of its overall mission to support the Signal Training Community with implementation of ALM DL initiatives (every accomplishment is tied directly to funding streams provided via TCM TADLP/TCM ATIS/CAC-T/ATSC):

(1) Developed over 36 active DL courses/ products to date which has resulted in 50,000 students receiving instruction via DL and other learning technologies (number of students given represents those enrolled in courses taken to support resident/nonresident/ sustainment/NET/MTT training on-line each month via the Fort Gordon LLC Open Enrollment and Unit Universities (Blackboard Server)). Interactive multimedia instruction greatly enhances and standardizes instruction for Active Component (AC) and Reserve Component (RC) units throughout the Force when self-development, sustainment, refresher and remedial training are conducted. All of the SIGCoEs Virtual/PC-based simulators and CBTs are available via the LandWarNet eUniversity (LWN eU) web portal (https://lwn.army.mil) to facilitate "On Demand" communications equipment operations training. All of the products with a few exceptions were developed with funding obtained from TCM TADLP.

(2) Supported the Connecting Soldiers to Digital Applications (CSDA) Initiative: The DDD has the sole responsibility to validate the content distributed through mobile applications for Signal-related topics in support of the efforts to institutionalize CSDA. Validating Signal-related Apps on an on-going basis will allow the Signal Center to further exploit the value of providing Soldiers with digital applications on Mobile Electronic Devices (MED) to provide mobile learning and operational app products at the point of need for all three domains of Army learning; Institutional, Operational and Self Development. The SIGCoE is currently working with TADLP on completing a Signal specific mobile app project that was developed via the CAPDL.

(3) Served as a "quality control" agent and life cycle manager for existing Signal DL products. Dedicated, qualified personnel monitor the development, fielding and maintenance of new and existing IMI in the SIGCoE courseware inventory to ensure the courseware is readily available for use via the LWN eU Blackboard Server 24x7. There are currently 32 high-quality (IMI Levels 3 and 4) fielded PC- based Simulators and 4 CBT products in the COE's IMI inventory. Approximately 12 more IMI products are being planned for development via the

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U.S.ARMY
Distributed Learning Supporting Training Awareness and Readiness

CAPDL between now and FY15. Having IMI products developed via the CAPDL will ensure the products become part of the "maintenance" responsibility for the TCM TADLP. TADLP reviews all products developed via the Army's enterprise DL contract vehicle (CAPDL) approximately every 2 years and provides proponents the opportunity to upgrade the original products for technology or content changes via funding provided by the program.

(4) Facilitated Army Enterprise Classroom Program (AECP) classroom upgrades at the SIGCoE. The major objective of the AECP is to provide a vehicle for all TRADOC installations to "modernize" all classrooms used for training to ensure they are configured to support 21ST Century training technologies. The DDD coordinates installation of all AECP technology upgrades for IT/audiovisual equipment for all existing training classrooms on Fort Gordon. The AECP also includes Classroom 21 (CRXXI) Program operations. At present the SIGCoE is working with the AECP to upgrade approximately 278 classrooms from Level 1 classroom technology (Instructor Presentation Station (IPS) only) to Level 3 technology (IPS plus student computer work stations networked to the IPS w/internet access available for instructors and students). Installation of classroom upgrades began in FY11 and over half of the scheduled upgrades have already been completed (approximately 150 classrooms). All classroom upgrades are expected to be complete by FY14. Having classroom upgrades done via the AECP ensures an "automatic" life cycle replacement plan for equipment installed via the program.

(5) Performed Audio Visual Production Officer (AVPRO) responsibilities. The DDD coordinates the development and review of the Signal Center's Graphic Training Aids (GTAs), Army Correspondence Course Program (ACCP); Signal sponsored Multimedia Visual Information Products to include the production and approval of training films, television tapes, and Army Recruiting Information Support System (ARISS) video tapes for Signal Corps military occupational specialties (MOSs). Having oversight of this additional responsibility allows the DDD to have "visibility" of all SIGCoE audiovisual productions to ensure "no duplication" of effort occurs for development of training products via the various DA sponsored programs (TADLP, DAMVIPDP, ARISS, ACCP, GTA, etc.). It also allows the DDD to have access to all Signal specific audiovisual training material available to discern what items may be "re-used" as a component for a newer technology (i.e. GTA in PDF format or 3D, animated simulations object can be used in development of a Mobile Learning Application). Various offices within ATSC provide the funding necessary to update and maintain any of the products falling under the "AVPRO" umbrella.

**LandWarNet eUniversity (LWN eU)**

The DDD also serves as DOT POC for implementing the lifelong learning concept for the SIGCoE. As mentioned above, the LWN eU also comes under the auspices of the DDD and is the Army's on-line presence for Signal MOSQ, C4 and Information Technology sustainment training for all Army Soldiers, Units and Department of the Army Civilians in every command and every theater of operation. LandWarNet eUniversity also provides an immediate on-line training response for training deltas to Soldiers and Units located anywhere in the world and is funded via TCM TADLP under the Enterprise Life Long Learning Center (ELLC) Program.

LWNeU's eLearning capabilities are used heavily by all forces. For example – during the first quarter 2012 the LWNeU Portal received over 1.8 million page hits and distributed over 2Tb of training and information to soldiers located throughout the world. The LWNeU staff communicates daily with deployed forces to deliver requested information and New Equipment training for systems being fielded in Theaters of Operation. 80% of Fort Gordon's bandwidth is attributed to LWNeU usage.
If all or most of the functions named above are not being performed by one office within your own DOT, they probably should be. Having all the DL and audiovisual initiatives developed/ monitored through one office within the

SIGCoE DOT has allowed the DDD to ensure the Signal Center pays "minimal" out-of-pocket expenses for ALM initiatives pertaining to DL and makes it even easier to ensure we take every advantage of the Army's programs to ensure our own local DL programs remain "stable" and "secure" for our cadre and staff in the out years. The one thing I think we all want to avoid is seeing all the hard work our staffs have done developing new DL ALM initiatives "disappear" after our own organization's limited resources are no longer available to support them. Having a great DL product that all your staff and faculty enjoy using and come to rely on heavily should never end up on the yearly "Unfinanced Requirement" list as a means for sustaining the product. If you would like information on the function and organization of the DDD to set up a similar office within your DOT, feel free to contact Pat Baker (Chief, DDD; (706) 791-6144) or Bennita Freeman (Chief, Distributed Ed Branch, DDD; (706) 791-2303) for more information.

Ms. Bennita Freeman is the Chief, Distributed Education Branch (DEB), Digital Development Division (DDD), SIGCoE Directorate of Training. Ms. Freeman has been Branch Chief for seven years. She serves as the Signal Center's CAC/ATSC/TRADOC DL Liaison and is responsible for interpreting TCM TADLP/ ATSC DL policies for Signal Center personnel. The DEB has the overall responsibility for the management, development and quality control assurance for the Signal Center's Interactive IMI products and audiovisual training aids.

*The U.S. Army Distributed Learning System (DLS) acquires, deploys and maintains a worldwide learning infrastructure that innovatively combines hardware, software and telecommunications resources with training facilities and course content to deliver a cohesive, Web-based solution*

https://www.dls.army.mil/

**IMI Development: Are You Really Ready To Proceed and Succeed?**

A jubilant atmosphere prevails when dollars have been allocated to fund the development of an IMI product. It is usually assumed that the heavy lifting has been done and the cakewalk is about to begin. This festive atmosphere typically ends after the post-award. This is when the voyage of discovery begins. Questions generated concerning the adequacy and sufficiency of GFI are more times than not apt to arise. Other tastes of reality may range from the dismay of the contractor that they may not have the right mix of resources to successfully complete the contract or the customer may suddenly realize that the government personnel needed to meet the demands of the timeline is not available. Many of these of these dilemmas can be avoided.

The following are some pertinent areas that need to be fully assessed to reduce the headaches that often accompany IMI development.

1. Customers knowing the performance metrics desired from the product to be developed

2. Government Furnished Information (GFI) availability and adequacy

3. Government Furnished Equipment (GFE) availability

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4. Government Furnished Facilities (GFF) availability

5. Organizational capacity to support development

6. SME availability and knowledge (Government and Contractor)

7. Liaisons to bridge communications between customer and contractor

8. Reviewers

9. Proper clearances for all personnel and facilities

10. Established processes and procedures to facilitate reviews and deliveries

11. Development and sharing of storyboards

12. Understanding time and resource demands of review cycles

13. Establishment of a portal and development team accessibility

14. Quality assurance.

Customers occupy a pivotal position in the IMI development process. The customer must develop a concept of the performance they want from the product being developed. The concept must encompass lesson objectives, evaluation plan, remediation, references, the needs of the instructor, and the needs of the student. Good lesson plans are a key component in this effort. Information gleaned from summative and formative evaluations are helpful at this stage. This should happen before money is requested to develop the product.

GFI availability and adequacy, GFE availability, and GFF availability should also be focused on early in the process. All developments require GFI. GFE and GFF may be the exception in some development efforts. If a simulator is being developed, GFE is a necessity. GFI, GFE, and GFF should be front and center in initial discussions. Having good repositories of GFI in support of classroom training helps the collection effort. GFE must be considered in support of authentic sounds, pictures, and video footage that may be required. It is essential in simulator development. GFF may be needed to support long term documentation of procedures or access to the equipment. The identification and status of GFI, GFE, and GFF must be acquired prior to the development and monitored throughout the development cycle. Sometimes changes in these areas occur during the development cycle!

The organizational capacity to support development must be considered by the customer and contractor. IMI development puts demands on

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Distributed Learning Supporting Training Awareness and Readiness

everyone. Is the development "more than the money" for the contractor or "just because of the money"? Does the customer feel that the development is totally the contractor's responsibility? Responsibility for development is shared by both parties. It can be a long day for either the contractor or the customer if organizational capacity to handle the demands of the IMI development is not up to par. We all have stories. It is beholden on all parties involved to not go in undermanned.

People are a necessary and essential ingredient in the development process. The availability of knowledgeable Subject Matter experts (SMEs) by the customer and the contractor is a critical linchpin. In some instances the government may be the only source of SMEs. Access to SMEs is crucial and must be established. Remember that the product must be relevant to the customers. SMEs are your sanity check. Liaisons to bridge the communications between customers and contractor (if one is used) must be identified. There should be a primary and secondary point of contact. The Technical Point of Contact (TPOC) typically fills the role of the primary contact for the government. Often an alternate TPOC is not identified. Reviewers need to be identified because they are the honest brokers in the development process. Reviewers are comprised of individuals and a representative target audience for the group validation. Proper clearances for individuals and facilities involved in the development effort must be addressed. Maintaining a current status of personnel availability and clearances is necessary. People still retire, deploy, move, take other jobs, and face life's challenges.

The early establishment of processes and procedures is needed to maintain discipline in the development process. The processes and procedures need to be shared with everyone and examined from time to time. Flexibility must sometimes be employed to move the development process along to facilitate reviews and deliveries. The development and sharing of storyboards is a process that can't be overlooked. Storyboards lay out the foundation of the IMI product. The contractor normally has the lead in developing the storyboards. Otherwise the storyboards will be developed in-house. The sharing of the storyboard format prior to the development of the initial storyboards should be mandatory. Sometimes the format of the storyboard does not contain enough information to convey what the product will look like and needs to be modified. It is urgent that storyboards are shared with the customers before developing the IMI product. Richer feedback can be acquired if the prototype IMI for the lesson can accompany the storyboards. This will be dependent on the available time and resources of the developer.

Understanding time and resource demands of review cycles is vital. I have witnessed

The DL STAR
U.S.ARMY
Distributed Learning Supporting Training Awareness and Readiness

situations where members of the development team did not fully grasp the commitment and effort required to meet turnaround times established in the schedule. This blind spot has been exhibited by contractors and customers alike. I caution all parties not to promise more than they can deliver. The terminal question is, "Can your people meet the demands of the development schedule?". Discussions about modifications to the development schedule may be necessary. Don't procrastinate! You may need to suck it up and step up to the plate if issues are not addressed.

The establishment of a portal and provisioning for access is a major component in the development of the training product. The portal is a key component for the collaborative process. A portal is necessary whether the development is in-house or contracted. The portal is routinely a part of the contractor's support package. Members of the development team must acquire an understanding of how the portal functions. Portals can vary in functionalities and configurations. The customer will need to identify who will need access to the portal and in some cases decide on the levels of access. Access to the portal by members of the development team needs to be established early. The portal is essential as a repository for GFI procedural information, and other documents. It is definitely needed when you have to share files that are too large for email. Files on the portal are available at all times particularly if people are in different time zones.

Quality assurance is a non-negotiable entity. In short, q*uality assurance* is the process of insuring that the final product meets or exceeds the required technical and performance standards. Quality assurance issues can range from tests not scoring properly to misspelled words. The customer and the party developing the IMI must be actively engaged in quality assurance. The development team must have the prerequisite skills and inclination to focus on quality assurance. The solicitation, documentation, and resolution of requested changes are paramount. Gatekeepers are essential to maintain discipline. Someone has to be designated as the tiebreaker to resolve differences between the customer and IMI developer. The primaries working the liaison between the customer and the contractor neatly fill this role. In an in-house development the contractor's role is synonymous with that of the IMI developer. Quality assurance is a joint effort.

It has been stressed time and time again not to assume anything. I urge you not to assume that your contracted instructors will be part of the IMI development process. I know you will respond that all instructors know that they must support training development efforts. Remember what I said about assuming. It is erroneous to assume that contracted instructors will be performing the traditional roles that civilian and

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U.S.ARMY
Distributed Learning Supporting Training Awareness and Readiness

military instructors have always supported. You need to insure that this is clarified and documented in contractual documents. A review of the contract deliverables for your current contract instructors is warranted. You need to insure that a gap in instructor support does not exist during the IMI development process. A rewrite of performance work statements (PWS) or a modification to the contract that is in effect may be in order. Take a look at the contractual documents you have developed for contracted instructors. I witnessed a case first hand where contracted instructors did not fully support the IMI development. This shortchanged efforts to fully articulate instructor input and needs in the IMI development process.

Producing the best training product you can to deliver to the learner is challenging! Not being adequately prepared is a cardinal sin. The total support of everyone to include management, SMEs, reviewers, target audiences, instructors, and contractors (when they are utilized) is needed to "bring home the bacon". I urge you to take the time to look at all aspects of the development process to insure you and your team are ready to go forward and not suffer needless delays and setbacks.

Andrew (AJ) Mason is an instructional systems specialist at the Signal Center of Excellence at Fort Gordon. AJ has a Masters in Instructional Systems Technology from Indiana University. He has recently been involved in the effort to update the Signal Center's Distributed Learning Plan. AJ has extensive military and civilian experience and in the areas of needs assessment, process improvement, and training development. AJ Mason is in the Distributed Education Section and can be reached at andrew.j.mason4.civ@mail.mil / Commercial: 706-791-0744, DSN 780-0744.

Advanced Distributed Learning
The Power of Global Collaboration

*The ADL Initiative was established in 1997 to standardize and modernize training and education management and delivery and is part of the Department of Defense Office of the Deputy Assistant Secretary of Defense (Readiness).*

**USAICoE: Achieving Excellence Through Collaboration**

*New multimedia center offers an integrated approach to developing instruction*

A merger of funding, knowledge and innovation will soon equate to big savings for the U.S. Army Intelligence Center of Excellence, Fort Huachuca, Ariz., which is weeks away from opening its state-of-the-art collaboration laboratory.

With the multipurpose facility, USAICoE organizations will have access to instructional design expertise, the most cutting edge software and development tools and knowledge as well as freedom to develop courseware in a closed network.

"The 'COLAB' as we call it, provides a critical facilitation capability where our designers, developers and instructors can work as a team or separately to create effective learning outcomes," stated Col. Jeff Jennings, deputy commander for Training, USAICoE.

"It offers not only cutting-edge technology, but also an environment where our educators can envision a desired learning outcome and with onsite expertise, can realize that vision," he added.

The new facility is located in Room 1090 of Riley Barracks, adjacent to USAICoE's Learning Innovation Office. LIO, the school's in-house capability to develop and maintain courseware, will provide technical support to organizations using the lab.

"This investment proves once again USAICoE believes in the general tenets of the Army Learning Model and is taking another step toward transformation of the schoolhouse," stated Leanne Rutherford, LIO director.

"With the command's commitment to an adaptive learning model, we will continue to lead the way for innovative training and education of MI (military intelligence) Soldiers," she added.

Rutherford offered some insight into how the idea for the COLAB was initially generated.

"Last year, LIO identified the requirement for additional space to conduct alpha and beta testing and develop on a classified network (secure internet protocol router network)," she said. "This spawned the idea of establishing a facility to support all organizations' needs to design, build and test highly interactive and educationally sound products in a collaborative, secure work environment."

Crawford Scott, information technology architect for LIO, explained how the centralized development area will offer USAICoE a more cost-

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effective alternative for meeting ALM requirements.

"Organizations and courses do not require daily, local access to software and development tools," he said. "Consolidating the equipment, software and expertise to a single location will ultimately save USAICoE a lot of money."

According to Scott, the lab will also fully support a tiger-team approach to development for rapid production of training products.

"The COLAB is further evolving the school's capability to develop and deliver interactive multimedia instruction to the new millennium Soldier in a timely manner," Scott said. "It is a perfect catalyst for successful implementation of ALM." Scott jointly designed and built the lab with Matt Covel, G6 projects manager.

Designated as a Classroom XXI four years ago, Scott stated the initial configuration was not conducive to collaboration. "With the Classroom XXI arrangement, the room featured two retractable screens and a SMART podium," he said. "It was basically a teaching facility."

Recognizing the initial configuration was not viable for the intended purpose, the pair took to redesigning the entire facility.

"We looked at the space and developed a plan that would encourage a collaborative environment while meeting all of our equipment and network needs," Scott explained.

USAICoE's new multipurpose facility consists of a test and development room, audio booth and video recording studio. The lab's test and development room is designed to facilitate collaboration for small and large groups.

Scott provided a technical overview of the new area. Considered the heart of the facility, he said the center features a 10 ft. diameter round table with a Crestron panel that controls the entire room.

"The table is equipped with both non-secure internet protocol router access and LIO closed network capabilities," Scott said. "Networks can be accessed via ports that are built into the table."

Two grouping of six desks or pods are located on the left side of the table. Each desk is equipped with three computers connected to available networks (NIPR, SIPR and LIO development).

"Monitors are attached to desks with adjustable arms that allow users to stow displays not in use," he said. "For collaboration purposes, one

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U.S.ARMY
Distributed Learning Supporting Training Awareness and Readiness

large monitor is mounted to the wall at the end of each pod."

Scott explained that an additional pod and media:scape collaboration table is located to the right of the main table.

"The media:scape station comprises four laptop computer ports that enable users to work together and share ideas through two 24-inch monitors mounted at the foot of the table," he said.

The COLAB is equipped with various types of software and game and web development tools. Among them are Adobe Creative Suite 6.0 and Captivate 6.0, Unity Game Development Kit and Microsoft Visual Studio 10.

Although much attention is being given to the test and development room and its collaborative features, Scott stated the facility's audio booth and video recording studio are equally impressive.

The audio booth comprises a soundproof isolation area as well as professional grade recording and editing equipment. A window and intercom system facilitate communication between the audio and video recording areas.

The video recording studio features soundproofing on the inner walls and a green screen background. It is also equipped with portable recording equipment that can be easily moved from the studio to the field.

LIO's multimedia and technology specialist maintains an office in the lab's audio and visual room.

Scott stated users may submit requests for services to LIO for audio and visual products.

"At this time, we're not giving access to the audio booth and video recording studio," he said. "Both have specialized equipment that require extensive training for use."

While the audio and visual areas are staffed with a full-time developer, the collaboration room is not.

Scott stated the lab's close proximity to the LIO instructional design and development teams will be beneficial as organizations and courses begin to collaborate and develop.

"We will be available if users require technical assistance," he said.

LIO plans to conduct classes on Captivate and other tools used in development, which will yield a more user-friendly space.

The DL STAR
U.S.ARMY
Distributed Learning Supporting Training Awareness and Readiness

Scott said the classes will be available to anyone interested in using the lab.

To arrange use of the new facility, access USAICoE's G3 scheduling system.

ATN
Army Training (and Education) Network
U.S.ARMY

*The Army Training Network (ATN) is a single web-based portal for Army training resources.*

http://www.train.army.mil/

**COLAB Supports Tiger Team Development**

With the collaboration laboratory nearing completion, training developers and instructors at the Intelligence School are starting to strategize how they will use the new facility to enrich their programs of instruction.

Among those looking at what the "COLAB" will mean for their organizations is Rebecca Oliver, a training specialist with the Non-Commissioned Officer Academy, U.S. Army Intelligence Center of Excellence, Fort Huachuca, Ariz.

"The collaboration lab is a superior capability for all organizations and courses across the schoolhouse," she said. "It is a one-stop shop to experiment with new technology, whether it's software or applications, before integration into courseware."

Located in Room 1090 of Riley Barracks, Oliver said the COLAB's close proximity to USAICoE's Learning Innovation Office is invaluable.

"Having access to LIO staff that is fully trained and able to provide users with technical assistance is important," she said. "It will be beneficial as organizations seek to become proficient in using the new development tools."

Oliver added that the lab's off-site location is desirable and has the potential to improve productivity. It will take instructors away from daily

The DL STAR
U.S.ARMY
Distributed Learning Supporting Training Awareness and Readiness

distractions and move them into a different environment—one that facilitates greater concentration."

NCOA began meeting in early January to discuss the COLAB's capabilities and opportunities it will afford them.

"Our organization previously did not have access to Captivate, which is available in the collaboration lab," she said. "We look forward to finding ways to harness the software in a manner that's meaningful and beneficial to our students."

Benefits of the new facility are expected to extend beyond new products organizations and courses build on their own to those that LIO develops for them through a request for service.

Oliver cited how the lab will support LIO's development efforts on NCOA's Intelligence, Surveillance and Reconnaissance Visual Reference Toolset.

"Prior to establishing the collaboration lab, the product could only be viewed in the LIO conference room," she said. "We now can look at it on a standalone computer, which allows us the freedom to play with the tool a little more."

NCOA also has plans to use the facility as a student test bed for software applications.

"Students will have the opportunity to experiment with tools as we simultaneously gauge how to most effectively integrate them into our courseware," Oliver said.

While NCOA will soon use the COLAB to develop new instructional products, USAICoE has already slated One Army School System as the facility's inaugural project.

"We have a 90-day turnaround on the OASS project," stated LIO Director Leanne Rutherford. "The Training Advisory Group has designated it the number one priority right now because of time and impact it has to the field."

Comprised of Active and Reserve Component schools, OASS is designed to provide relevant and realistic institutional training to an Army Force Generation in an era of persistent conflict.

Regardless of component, OASS ensures Soldiers attend professional military education or functional training courses on time and to standard.

Rutherford explained that USAICoE's OASS project is three-fold, with organizations working collectively to meet the requirement.

"The Training Development and Integration Division, which owns the RC piece for Training Development and Support, is taking an active

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role in the overall project," she said. "LIO is responsible for design and development, and the 35F AC is ensuring curriculum is current and accurate."

According to Rutherford, the lab promotes productivity by offering the project team a neutral space to plan and build the 35F10 RC distributed learning product.

"With efforts focused solely on OASS, the project's training developers, instructional designers and IMI (interactive multimedia instruction) developers are using amenities of the new facility to execute a tiger team approach to product development," she explained.

Maj. Katherine Long, Reserve Component Branch chief of USAICoE's Training Development and Support Directorate, is the OASS project action officer. Connie Hackathorn, TDS RC instructional designer, is supporting instructional design efforts.

"The lab is a critical component of this project," Long said. "It offers the ability to use cutting-edge technology in a collaborative environment. Key players can work side-by-side, leveraging each other's expertise to develop creative and instructionally sound dL courses."

She said the project began several months ago with a thorough analysis of the current courseware and recommended changes.

"Now the team will use the lab to bring all their concepts to reality," Long added.

Jose Martinez, LIO development lead, stated his organization is initiating the project with a review of the analysis and extraction of areas that are dL.

"LIO will determine if it has existing IMI that can be repurposed for OASS," he said. "We will pursue new development for the remaining elements."

USAICoE will launch a 30-day pilot of the OASS training product in late May and deploy it in July.

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**Instructional Design in Online and Distance Learning**

Distance learning (DL) and online learning has been under scrutiny lately because concerns exist regarding whether the learner genuinely learns in the online environment. Questions that arise include:

*Does the learner click through the modules just to finish?*
*Has the learner truly retained anything?*
*What validation exists of any real learning that has taken place?*

Without instructionally sound design that is translated into the development phase of ADDIE or a similar process, DL becomes the "sage on the stage" but without the sage. It carries important content without learning facilitation.

It is common to see DL produced and distributed then subsequently termed "PowerPoint on steroids" e.g., computer screens loaded with text, pictures, and audio yet no instructional strategies that enable retention. When there is no learning transfer or enabling of the learner to move knowledge from short-term to long-term memory, there is no guarantee that learning has been achieved. Much of the time there is lack of validation that the instructional intention has provided the learner an an opportunity to construct knowledge or skill. The current practice of DL design and development remains for the most part *instructor- or content-centered* where the focus is on the instructor or content, not the learner. If the course design is truly learner-centered the focus extends from the content and successfully connects the learner contextually and interactively.

Although there are a myriad of factors that impact effective DL programs (e.g., functionality, ease of navigation, hardware/software, learning management systems (LMS), intuitiveness) the focus should be on the underlying foundation of instructional design. The shift that should occur toward an instructional design mindset is a departure from content orientation to a learner-centered orientation. Within that learner-centered construct is the utilization of learning theories such as cognitive load theory. Cognitive load within a DL environment has to be seriously considered, analyzed, and implemented; this includes segmenting large chunks of information into smaller informational elements while recognizing the impact of audio and visual delivery on usable short-term memory. For example, with novice learners there is better transfer of learning and retention when interesting but irrelevant material, such as background music and non-essential video clips are removed from the content. Or when a concise narration of an animation is used rather than an embellished narration animation; whereas, the inverse is true for more experienced learners. Extraneous elements detract from the learning

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process.

Creating varied checks on learning that go beyond the simple question-and-answer modality of most DL provides a richer feedback system. These checks can best be implemented when they utilize mid-order Blooms taxonomy requiring the learner to reflect through third-party observation (also coded in the LMS as correct or not correct) of what has been learned. This should include observable comprehension, application, and analysis. Providing a contextual basis in both the instructional content and the checks on learning provide an answer as to "why" and "how" the content is important. Also connecting the new learning to what is already known. By doing so, the learner is able to begin constructing new schema or elaborating on existing schema to enhance long-term memory. A schema is a "knowledge structure stored in long-term memory." Schema can be viewed as connecting the dots of disjointed bits of information into new or evolving constructs for each individual.

Understanding how to use "backwards fading" (a scaffolding technique) gives the learner the schema of how to retain whatever process being learned. In mathematics this is known as a worked example. The learner is introduced to the process in steps (e.g., algebra) and is moved through a series of problems while different steps are removed. The learner is prompted to fill in the missing step. By the end of the exercise the learner is completing all steps without prompts. These are just a few ways to scaffold, enable, and motivate the learner in an online environment and produce the desired outcomes.

As DL and online learning become more of a mainstay for 21st Century learners, it is imperative that best practices be utilized. New paradigms need to replace the focus on face-to-face training and development practices and be transferred or augmented on how best to teach online. A "one size fits all" guidance does not address the learning environment for DL. This issue has been tackled outside the military through organizations like Quality Matters which is a consortium of educational institutions and provides peer-reviewed DL/online learning best practices. The Quality Matters Rubric, can be used and implemented by member institutions and typically has three or more trained reviewers within each organization.

Instructional design must drive technology not the reverse. Technological capability of computers and other delivery media together with whiz-bang graphics too often has become the central focal point of the instructional strategy rather than vice-versa. Implementing a solid instructional strategy to reclaim the use of the technology and utilize its amazing capabilities in instructionally sound ways will serve to promote and foster learning and retention. Whether DL design and development is controlled by cost,

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U.S.ARMY
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resources, or time constraints it is paramount that the process primarily remain and adhere to a learner-centered approach. If best practices in DL design are not implemented or defined (i.e., instructional design strategies) the outcome of the product will be less effective in meeting the instructional goal.

It further represents a waste of valuable resources in a financially constrained environment.

Online and distance learning can and should play a vital role in how learning can take place if done well. But, it can only be done well if the approaches utilized are in the best interest of the student and how best to achieve student engagement in an online environment.

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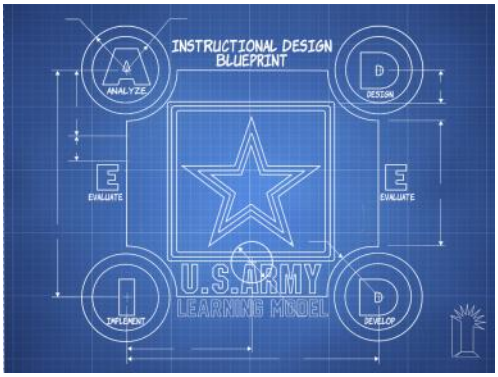

**Multiple-Choice Tests Can Measure More Than Knowledge**

When you think of a multiple-choice test, what comes to mind? Traditionally when it comes to testing, multiple-choice tests have received less than favorable reviews. In my opinion, the multiple-choice test has been so vilified that it runs the risk of facing extinction based on misconceptions.

Often multiple-choice tests are criticized due to the perceived lack of rigor. However, a skilled item writer is capable of writing a stem (presents the problem) with a correct answer and plausible foils or distracters (incorrect answers), that can measure higher levels of cognitive ability, such as problem solving, synthesis, interpretations, comprehension, and evaluation (Thorndike & Thorndike-Christ, 2010). In fact, research indicates that if the stems of selected response items (multiple-choice test is a form of selected response) and constructed response items (such as fill in the blank items) are written similar, multiple-choice items are just as effective and in some cases more effective than their constructed response counterparts (Haladyna & Downing, 1993). Well written multiple-choice items are defensible, have a high level of structure, provide a broad sample of achievement for measurement, and even the distracters can provide diagnostic information. Consider the following examples based on Gronlund (1998):

Knowledge based item:

*Outcome:* Identify the meaning of a term.

Replication means the same as:

*A. duplication

B. relevancy

C. reflection

D. usefulness

Now compare this item with the following application item:

Application based item:

*Outcome:* Distinguishes between properly and improperly stated learning objectives.

Which of the following learning objectives is properly stated?

A. Gains an appreciation of the importance research methods.

*B. Explains the differences between experimental and descriptive research.

C. Learns how to write good research papers.

D. Realizes the importance of exploring

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research topics

Lastly, compare the knowledge item with the following comprehension item:

Comprehension based item:

*Outcome:* Interprets the meaning of an idea.

The statement that "children are a "blank slate" waiting to be written on by their life experiences." means that:

*A. Children are not innately good or bad, and can develop in any direction.

B. Children are born selfish and it is society's job to help them become good.

C. Children are born innately good and understand right and wrong.

D. Realizes the importance of exploring different research topics.

Lastly, compare the knowledge item with the following comprehension item:

Comprehension based item:

*Outcome:* Interprets the meaning of an idea.

The statement that "children are a "blank slate" waiting to be written on by their life experiences." means that:

*A. Children are not innately good or bad, and can develop in any direction.

B. Children are born selfish and it is society's job to help them become good.

C. Children are born innately good and understand right and wrong.

As you can see from the previous examples, multiple-choice tests can be written to measure various levels of cognitive ability.

By changing the stem of the question, you change level of cognition it measures. The following are some examples for stems based on different outcomes being assessed. These are adapted from Gronlund (1988, pp. 57-58).

Example Illustrative Stem Questions for Multiple-Choice Item Writing

| Outcome Type | Example Stem Starter Question |
|---|---|
| **Knowledge** of trends and sequences | 1. Which of the following best describes the trend of<br>2. What is the most important cause of |

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| | |
|---|---|
| **Knowledge** of criteria | 1. Which of the following is a criteria for judging<br>2. What criteria are used to classify |
| **Knowledge** of principles and generalizations | 1. Which statement expresses the principle of<br>2. Which statement summarizes the belief that |
| **Knowledge** of methodology | 1. What method is used for<br>2. What would be the first step in making |
| **Knowledge** of classifications and categories | 1. What are the major classifications of<br>2. What are the characteristics of |
| **Comprehension** | 1. What do you predict would happen if<br>2. What are the main differences between |
| **Application** | 1. Which of the following provides the proper sequence for<br>2. Which situation would require the use of |

**More is not always better**

The ability to randomly guess the correct answer from choices, is another limiting factor often cited for multiple-choice tests. To limit the possibility of guessing the correct answers, test writers use four or five distracters. However, research indicates that three distracters are effective and sufficient. This does not mean that you should avoid developing a test with four or five distracters; instead it means if you can only come up with three plausible distracters then that is sufficient (Haladyna & Downing, 1993; Rodriguez, 2003). Most tests that have four or five distracters have a higher possibility of implausible distracters (Rodriguez, 2003). Making the distracters plausible is not easy and takes time to develop. To give an example, consider the following adapted from Thorndike & Thorndike-Christ (2010):

Poor: In what year was the first car powered by an internal combustion engine made?

A. 1501

B. 1806

*C. 1806

D. 2003

Better: In what year was the first car powered by an internal combustion engine made?

A. 1804

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B. 1805

*C. 1806

D. 1807

In the poor example, you automatically increase the chance of guessing the correct answer to 50%, because of the A and D distracters. In contrast, in the second "better" example, since there is an even spread between the numbers and the distracters are reasonable, the chance of guessing the correct answer is reduced.

**The Science and Art of Test Item Development**

The art of test item development comes from the creativity used to develop test items and the science from evidence based guiding principles for item writing. The success of a good multiple-choice test is largely dependent on good test item writing that comes from following assessment design principles. In a sense, the design process for assessment is similar to the process for designing instruction. Although multiple-choice tests can be designed to measure varying levels of achievement, a multiple-choice format should not be used when the assessment requires very high level integration of complex skills, such as the case for some writing requirements or performance based purposes. The following are a couple writing. For more information on the 31 guidelines refer to Haladyna, Downing, & Rodriguez (2002, p. 312).

- Avoid trivial content and trick items. Base items on only the content learned in the learning objective.

- "Every item should reflect specific content and a single specific mental behavior, as called for in test specifications (two-way grid, test blueprint)."

- Make sure items are edited for correct grammar, punctuation, capitalization, and spelling.

- The stem should have all of the important information needed to answer the question, the central idea, without excessive verbiage.

- Avoid giving clues to the right answer in the choices with words such as always, never, completely, absolutely or absurd ridiculous options.

- Use typical errors students would make in the distracters.

All educational tests should be written to measure achievement at the level of the learning objective. When writing a test item ask yourself "Is this type of item appropriate for

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measuring the learning outcomes?" and "Does the item task match the learning task to be measured?" As is the case with most skill development, knowledge of evidence based research in assessment and continued practice in item writing will help to increase the validity and reliability of tests.

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**Distributed Learning Government Acceptance Review: Ensuring Your DL Passes the Wickets**

The TRADOC Capability Manager – The Army Distributed Learning Program (TCM-TADLP) Capabilities and Implementation Office, Implementation Branch is primarily responsible for the implementation or fielding of Army DL. This branch, also known as TADLP Implementation, is the recipient of DL content that is fielded and delivered on the Army Learning Content Management Capability (ALCMC) platforms: the Army Learning Management System (ALMS) which is managed by the Product Director, Distributed Learning Systems (PD-DLS), and the Enterprise Lifelong Learning Center (ELLC) which is managed by the TRADOC Capability Manager – Army Training Information Systems (TCM-ATIS). Before Army DL can be fielded on one of the ALCMC platforms, it must undergo a review and technical functionality testing on the targeted fielding platform to ensure it can be fielded in accordance with the proponent's instructional strategy.

Prior to 2009, Army DL underwent redundant technical functionality testing cycles, and this caused delays in fielding it. Since 2010, developers (both contracted and in-house) are required to provide proof that the Army DL they are submitting to the government has been thoroughly tested for conformance to the Advanced Distributed Learning (ADL) Shareable Content Object Reference Model (SCORM) 2004 Third Edition specification, and functions without error on the Content Test Environment (CTE) for the ALMS, and/or the Content Validation Server (CVS) for the ELLC. The proof is provided to TADLP Implementation in the form of log files generated by the ADL SCORM 2004 3rd Edition Test Suite, and Army Test tools, and screen captures from the CTE or CVS for all content and exams showing the information reported by the DL and tracked on the learner's record.

TADLP Implementation conducts a Government Acceptance Review (GAR). This established and documented process begins when TADLP Implementation receives a notification that there is DL that is ready to be fielded on the ALMS or ELLC. The developer provides a copy of the DL files that will be loaded on to the ALCMC platform from which it will be fielded, along with documentation files: the log files, the screen captures, the answer keys, the course map, the completed Catalog Form (Cataform), and the completed Switchover Data Form if the course will be fielded on the ALMS. TADLP Implementation logs the receipt of the DL and conducts the first phase of the GAR, a review of the documentation to ensure compliance with Army DL requirements. At a minimum, the DL files must pass the ADL SCORM Test Suite Content Package Conformance Test; compliance with the requirements outlined in the U.S. Army

Business Rules and Best Practices for SCORM is based on the contract task order, or Memorandum of Agreement used to develop the DL. Also, all screen captures must match the learning paths identified on the course map; if there are multiple paths through the DL, each path requires a corresponding set of screen captures.

Upon successfully completing the first phase of GAR, the path of the DL through GAR changes based on which ALCMC platform will be used to deliver the DL. For DL that will be fielded on the ALMS, the DL enters the second phase of GAR- technical functionality testing. Technical functionality testing is conducted primarily by PD-DLS on the production ALMS instead of the CTE. PD-DLS constructs the DL files into a course on the ALMS following the course map provided by the developer, and the tester navigates through the course as a learner would. The tester ensures the DL reports the proper information to the ALMS, all media is displayed and plays without issues, and no problems exist that prevent a learner from receiving proper credit for completing the DL. The tester also tests to ensure the DL does not harm the ALMS or crash the system.

For DL that will be fielded on the ELLC, the Proponent certifies that the DL functions at their level of acceptance. The Proponent provides an electronically signed document, the Proponent Playability Acceptance Report, in which the Proponent attests that the DL has been proven to function properly in accordance with its design in the ELLC and meets the training intent of the Proponent. This document also includes screenshots from the ELLC production system proving the DL files were constructed as part of a course and did not harm the ELLC.

So what does a developer (contracted or in-house) need to do to ensure their DL passes through all of the GAR wickets on the first time? Follow these steps:

1. Download the U.S. Army Business Rules and Best Practices for SCORM, located at http://www.atsc.army.mil/tadlp/contractors/capdl/compliance/scorm_business_rules.asp , and the ALMS Standards, Guidelines and Best Practices, located at https://www.dls.army.mil/courses_courseware.html.
Use the information provided in the Business Rules and Best Practices document, and the ALMS Standards, Guidelines and Best Practices document to ensure your DL is built using the proper SCORM data elements and values.

2. Download the SCORM CAPDL Acceptance Criteria, located at http://www.atsc.army.mil/tadlp/contractors/capdl/compliance/acceptance_criteria.asp Use the SCORM CAPDL Acceptance Criteria and associated testing tools to validate that your DL

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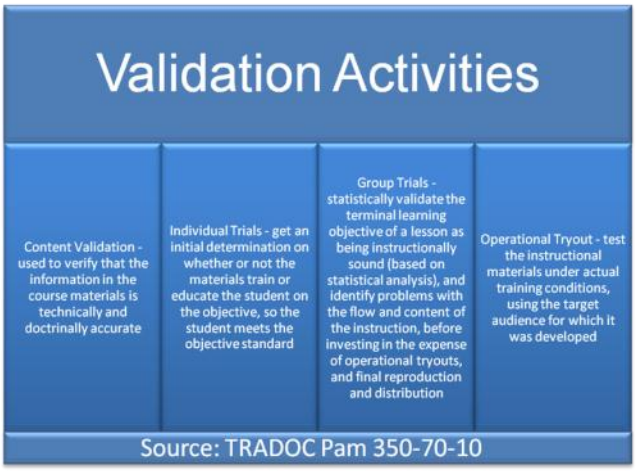
meets the minimum Army requirements for SCORM 2004 3rd Edition DL.

3. Upload the DL to the CTE and/or CVS to verify all learning paths function according to their design, without faults or problems. Make certain that all methods for exiting the DL generate accurate results and behaviors in the DL. Conduct validations with members of the targeted learning population to ensure the accuracy of the DL content. Figure 1 contains the explanation of each DL validation activity.

4. Ensure the log files, screen captures, answer keys, course map, the completed Catalog Form (Cataform), and the completed Switchover Data Form reflect all changes made to the DL and are accurate and complete. When TADLP Implementation receives incomplete documentation, it will delay getting the DL through the GAR process and ultimately getting the DL fielded and available to learners.

If there are any questions regarding the GAR process, access to the ALMS CTE or ELLC CVS, or locating guidance for development and implementation, please contact TADLP Implementation at usarmy.jble.tradoc.mbx.atsc-tcm-tadlp@mail.mil.

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