

FY13 WFOs



DEPARTMENT OF THE ARMY
U.S. ARMY COMBINED ARMS CENTER AND FORT LEAVENWORTH
DEPUTY COMMANDING GENERAL, COMBINED ARMS CENTER - TRAINING
201 AUGUR AVENUE
FORT LEAVENWORTH, KANSAS 66027-1314

REPLY TO
ATTENTION OF:

16 JUL 2012

ATIC-SAP

MEMORANDUM FOR Director, Capabilities Development and Education, Army Capabilities Integration Center, 950 Jefferson Avenue, Fort Eustis, VA 23604

SUBJECT: FY13 Warfighter ~~Outcomes~~ for the Training and Education Domain

1. In an effort to support the ARCIC initiative to develop a "Single Gaps List", I endorse the enclosed list of FY13 Training and Education (T&E) Warfighter Outcomes (WFOs).
2. The capability gaps captured in FY12's list have been reviewed, refined, and validated by key stakeholders. The FY13 T&E WFOs provide greater detail of the capabilities needed, as well as incorporate the intent of the November 2011 Training GOSC-approved Science and Technology (S&T) initiatives, and Army Senior Leaders' T&E priorities. In addition, the WFOs were crosswalked with the FY14-18 CNA list and reconciled to ensure all relevant gaps were aligned and properly represented to facilitate the merge into a Single Gaps List.
3. As the S&T lead for the Training and Education domain, our Training Support Analysis and Integration Division at the CAC-Training's Army Training Support Center will continue to work with your S&T Division to ensure T&E WFOs are assigned high priority within the Single Gaps List corresponding to their continuing rank as a "Big Five" WFO.
4. Point of contact for S&T at ATSC, TSAID is Mr. Clay, 757-878-0465, or david.w.clay6.civ@mail.mil.

Encl


MIKE LUNDY
Colonel, USA
Deputy Commander
Combined Arms Center for Training

FY13 Training and Education Warfighter Outcomes

Training - Provide the Army the ability to create an efficient, versatile, integrated, and effective unit-training construct that is adaptive to the operational environment and responsive to commanders, leaders, and trainers as they develop unit training to meet ARFORGEN readiness objectives. The construct must be scalable, tailorable, and dynamic to allow commanders to train units at different levels of fidelity to develop new Soldiers as well as deepen the experience of seasoned professionals, by developing tools and technologies that enable more effective and efficient training through live, virtual, immersive, mobile, and adaptable venues. Future training must enable individuals and units to become proficient at more skills, faster, at a lower cost, and with greater retention than currently achievable. Training in units requires enhanced training techniques and technology for on-demand mission planning and rehearsal; individual, collective, and mission command training; and training prior to new equipment availability. Future training must be completely adaptable and scalable to cover all of the Unified Land Operations challenges facing the Soldier.

(T-1) Realistic, Mission Command-Centric, Integrated Training Environment

The Future Force requires an embedded, networked, and integrated training environment (ITE) at homestation, combat training centers, institutions, and while deployed.

The integrated training environment must:

1. Support realistic training and education for unified land operations including sustainment and maneuver support challenges associated with decentralized and distributed operations, mission command networks, and sensors.
2. Replicate complex operational environments with a level of realism sufficient to optimize training effectiveness for standardized METL training.
3. Provide unit leaders the ability to conduct on-demand distributed training and mission rehearsal across echelons and geographical locations.
4. Include a comprehensive (individual and collective), embedded combined-arms training capability, that includes mission command and maneuver (mounted and dismounted) tasks. The embedded training must portray realistic operations effects (e.g., visual and aural cues) to enhance situational awareness during training events.
5. Provide a Training (that includes education) Network with the capacity and infrastructure to support worldwide, secure, wireless delivery of training products on platforms that range from fixed computers and simulation centers to mobile platforms across all training environments and domains.

The network must:

- a) Support interpost "linked & unlinked" events at homestation, combat training centers, Army schools and while deployed.
- b) Deliver real-time training enablers (training aids, devices, simulators, and simulations) and distributed learning, education, and exercises when and where needed.
- c) Allow the embedded training systems the ability to be interoperable and integrated into the Army Integrated Training Environment (Army ITE).
- d) Support both the Operational Army and Generating Force.
- e) Enable the Regional Collective Training Capability (RCTC) in support of Training at Homestation initiative.

(T-2) Accessible Learning Capability

The Future Force requires an accessible, responsive, and adaptive "24/7" learning capability that is available worldwide at the point of need.

The learning capability must:

1. Integrate knowledge management tools, techniques, technologies, and infrastructure that enable the rapid development or adaptation, storage, delivery, and access to individual and collective training and education information and/or products (e.g., training and learning management tools, knowledge banks, communities of practice, and collaborative learning).
2. Provide mobile access to learning content, on-demand, at the point of need, to include mobile internet devices using secure wireless applications and infrastructure.
3. Provide Soldiers, DA civilians, and their leaders access to well-designed learning content and information that is relevant to their learning needs, is secure, and is accessible across their careers.
4. Support the individual at homestation, Army institutions, and while deployed.
5. Provide for reliable and constant easy access to relevant, up-to-date, engaging, operational and institutional information within a secure or unclassified environment.
6. Provide applications and templates for common activities (e.g., orders, reports), with the ability to increase complexity for training and education applications.
7. Be designed with an architecture that allows interoperability to support multiple training and education products; and, where possible, be device agnostic so that the products can be played on multiple kinds of devices and systems. The architecture must have clearly defined protocols and standards, facilitate content validation, and allow assessment of product content and effectiveness.

8. Provide reach back and access to subject matter expertise (these resources will include knowledgeable individuals and comprehensive informational databases) at the point of need at any time.

(T-3) Low-Overhead Immersive Training and Education Capability

The Future Force requires an immersive virtual training system that fully represents the physical aspects of the operational environment (OE) and remains cost effective. 5

The immersive capability must:

1. Provide individual and multi-echelon low-overhead simulation(s) that enable a small unit collaborative training experience using L, V, C, or G enablers, and limited mission planning and rehearsal capabilities for Unified Land Operations.
2. Be secure, low cost, interoperable with Army and Joint Mission Command systems, and a fully interoperable with the Army Integrated Training Environment.
3. Allow the rapid development of scenarios and vignettes to replicate the conditions of the OE, including autonomous computer-generated (Blue, Red, and Gray) forces.
4. Allow the migration of collective scenarios into an individual immersive environment to increase rigor and rapid iterative retraining based on feedback from an AAR capability.
5. Be easily adaptable to train individual and collective tasks from the fundamental to more complex, and from the high to low density Functional Area and MOS skills.
6. Provide an immersive capability for dismounted Soldiers that provides sufficient realism to maximize learning.
7. Provide Joint operations "wrap around" capability.

(T-4) Enhanced Gaming Capability

The Future Force requires a persistent, scalable, and adaptable multi-echelon, networked (that can also operate in a stand-alone mode), and online gaming capability that replicates the operational environment and enhances training and education effectiveness.

The gaming capability must:

1. Provide for avatars that reflect Soldier characteristics (e.g., height, weight, skills, fitness, and physical attributes).
2. Allow easily configured terrain and scenarios via rapid scenario and exercise generation tools to increase timeliness, availability, and instructional outcomes of scenarios that replicate operational events to support training, education, and mission planning and rehearsal; rapid, user-friendly authoring tools to reduce development costs and time, and permit Soldiers and units in the field to create effective learning scenarios at the point of need.

3. Provide the ability to train leaders, using one game, in multiple roles at different echelons, providing immediate feedback on performance.

4. Allow for realistic and meaningful interactions between real and virtual players (e.g., those that realistically portray appropriate facial expressions and gestures, react and counter-react to verbal and non-verbal stimuli, and act autonomously to support learning objectives). Interactors include the full range of threats (conventional, irregular, terrorist, and criminal), indigenous populations, and JIIM elements.

(T-5) Individual Training for Tactical Tasks

The Future Force requires a learner-centric system that can adapt to the needs of the individual through timing, content, volume, means of delivery, and duration using a centralized training database.

The training capabilities must:

1. Be tailorable to meet the specific skills and knowledge level or needs of the individual Soldier or leader.
2. Be rapidly developed, updated, and easily accessed.
3. Provide a persistent and adaptable infrastructure to accelerate Individual learning.
4. Enable Soldiers, DACs, and their leaders the ability to conduct accurate self-assessments to determine future training and education requirements to improve knowledge, skills, behaviors, and abilities.
5. Provide the ability to design individual learning strategies and the tools to execute them based on valid machine or instructor assessments.
6. Provide embedded assessment and diagnostic capability to support individual diagnostics to tailor and adapt individualized instruction, provide verification of mastery, and track preparedness for career progression.
7. Include an affordable capability to develop technology-delivered instruction that mimics a one-on-one expert tutor by adapting and tailoring individualized learning to the learner's prior knowledge and learning style preferences (i.e. an intelligent digital tutor). This artificially intelligent agent will coach Soldiers, guide them through learning events, provide performance feedback in accordance with Army standards, diagnose learning gaps, and anticipate and seek out learning content tailored to the learner's needs. This personal tutor augments live coaching and is continuously available to tailor learning strategies to individual learning objectives.

(T-6) Interface for Commander-Managed Training

The Future Force requires the ability for the commander to interface with the Integrated Training Environment to develop, view, and manage Unified Land Operations training events in real time by adjusting training conditions and activities to stimulate decisive action task training.

The interface must:

1. Provide situational awareness for the commander across L, V, C, and G training enablers.
2. Allow the commander to adjust training conditions; rapidly advance training; repeat/redo training under different conditions; and increase rigor, intensity, and complexity, as desired.
3. Provide the commander automated unit training management tools to support rapid team building, and mission planning and rehearsal to assure mission-tailored units achieve the level of readiness needed for rapid deployment. Automated data collection, analysis and presentations for after action reviews (AAR) for live, virtual, constructive, and gaming training require automated AAR development which is driven by training objectives and a full understanding of tasks, conditions and standards. Improved data collection and AAR development through increased artificial intelligence will reduce time and the staff required to assemble AARs. AAR capability must also be interoperable and integrated into the Army Integrated Training Environment (Army ITE).
4. Allow unit leaders the ability to quickly and affordably access training scenarios at the appropriate level of complexity and adjust them to meet mission-specific individual and collective training objectives without significant external support.

(T-7) Virtual Human Capabilities

The Future Force requires virtual human capabilities to represent combatant and non-combatant forces, indigenous populations and culture, and JIIM players across the integrated training environment to replicate the complexities of Unified Land Operations in any Operational Environment.

The virtual humans must:

1. Be high-fidelity, realistic, computer-generated elements that are "free-thinking" and can react to learners using virtual and gaming capabilities for training and education.
2. Have appropriate facial expressions and gestures, react and counter-react to verbal and non-verbal stimuli, and act autonomously in the virtual enablers to support learning

objectives and improve future Soldier, DAC, and their leaders' skills, adaptability, and innovative thinking.

3. Be cost effective and affordable to provide realistic virtual humans to populate large-scale simulations and participate in live training events (via augmented reality capabilities) to expand the range of on-demand, interactive training opportunities and reduce human overhead support.

(T-8) Adaptive Training and Innovative Learning

Leader development and unit training in the Future Force requires responsive and adaptive training and education infrastructure, development capabilities, and applications that rapidly and effectively incorporate emerging warfighting experience and knowledge into training and education in the schools, units, and through self-development.

1. The adaptive training system must provide advanced automated training development tools, collaborative development capabilities, and shared information repositories to rapidly and efficiently capture, incorporate, and disseminate relevant information through effective learning means (e.g., modules and scenarios) at the point of need.

2. The Future Force requires greater knowledge of: how to learn more rapidly and retain acquired skills and knowledge longer, the art and science of learning, and neuroscience applications to create innovative, adaptable, tailorable and flexible learning models, methodologies, strategies, and tools that result in more effective and efficient learning for units and individuals in institutions, at homestation and while deployed.

3. Leaders need enhanced pedagogy capabilities to inculcate critical competencies for Unified Land Operations at appropriate levels across the learning continuum.

(T-9) Enhanced / Integrated Live Training Capability

The Future Force needs to rapidly develop and conduct synchronized live training, up to brigade level, in conditions that replicate the complexities of the operational environment.

The training capability must:

1. Stimulate mission command systems and actual sensors; realistically replicate combined arms effects and capabilities; realistically replicate hybrid threat capabilities and the capabilities of Joint, Interagency, Intergovernmental, and Multinational (JIIM) partners; be interoperable among air, ground (mounted and dismounted), and other Service TADSS systems; and provide rapid and realistic feedback to the individual, vehicle, or equipment

2. Provide a full-scale urban operations training capability for homestation and at CTCs that integrates L-V-C TADSS and infrastructure.

(T-10) Cultural Awareness

The Future Force requires the ability to understand, communicate, and coordinate effectively across diverse groups of people in a variety of cultures.

This capability is needed to create innovative, adaptable, tailorable, and flexible learning models and must:

1. Include increased understanding of cross-cultural capability; associated learning objectives and sequencing of cross-cultural competency development; and methodologies, strategies, and tools for use with L, V, C and G training enablers.
2. Enable Soldiers, DA civilians, and their leaders to develop and sustain appropriate language and cultural competencies (region and culture—specific and general) that enhance performance in operational environments.

(T-11) Models and Simulations for Training Effectiveness Analysis

The Future Force requires the development of models, simulations or other tools for Training Effectiveness Analysis.

The tools must:

1. Evaluate the effectiveness and efficiency of existing training programs and products.
2. Predict impacts—positive and negative—of proposed training products and programs.
3. Enable comparison of return on investment (time, manpower, money) across training strategies.