



TC 7-102

Operational Environment and Army Learning

NOVEMBER 2014

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Operational Environment and Army Learning

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Preface

Training Circular (TC) 7-102 presents concise and enduring doctrine-based guidance on how to integrate the variables of an operational environment (OE) into Army training, education, and leader development. This TC includes concepts and capabilities (products, services, and support) developed for the Army as an Operational Environment Enterprise (OEE) to improve and sustain Army readiness.

The principal audience for TC 7-102 is all members of the profession of arms. The training and curriculum developer and the commander or leader responsible and accountable for developing and instituting the Army Learning Model (ALM), as referenced in AR 350-1, use this training circular.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with the applicable United States, international, and in some cases host-nation laws and regulations. Commanders at all levels ensure that their Soldiers operate in accordance with the law of war and the rules of engagement. (See FM 27-10.)

For definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition. This publication is not the proponent for any Army terms.

TC 7-102 applies to the Active Army, the Army National Guard (ARNG)/Army National Guard of the United States (ARNGUS), and the United States Army Reserve (USAR) unless otherwise stated.

The proponent of TC 7-102 is Headquarters, U.S. Army Training and Doctrine Command (TRADOC). The preparing agency is the Complex Operational Environment and Threat Integration Directorate (CTID) of the TRADOC G-2 Intelligence Support Activity (TRISA)–Threats. Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) directly to Director, CTID at TRADOC G-2 Intelligence Support Activity–Threats, ATTN: ATIN-T (TC 7-102), 803 Harrison Drive, Building 467, Room 15, Fort Leavenworth, KS 66027-1323.

Introduction

Training Circular (TC) 7-102, *Operational Environment and Army Learning*, is a practical guide on how to integrate the conditions of an operational environment (OE) into robust, relevant, and realistic training, professional education, and leader development experiences. This TC presents critical design techniques and means that support the fundamental concepts of a continuously adaptive learner-centric model—the Army Learning Model (ALM)—for improved Army mastery to anticipate, understand, and adapt successfully to complex, uncertain, and/or ambiguous environments in decisive action.

The purpose of this TC is to guide the training developer, curriculum developer, and leader or commander on how to integrate OE conditions that enhance self-development, leader development, and unit or activity readiness. The intent is to achieve and sustain adaptive Army readiness to standards. Learning experiences range from personal one-on-one instructor-student or mentor-mentee dialogue to technology-enabled simulations and operational mission or training feedback that replicate a particular set of OE conditions in a task/action, conditions, and standards format. The Army's Operational Environment Enterprise (OEE) delivers OE products, services and support to its Soldiers, civilians, leaders, and supported and supporting stakeholders for readiness. The OEE projects from the institutional training domain, that is, the Army's institutional training and education system, and impacts the entire Army mission. (See figure1.)

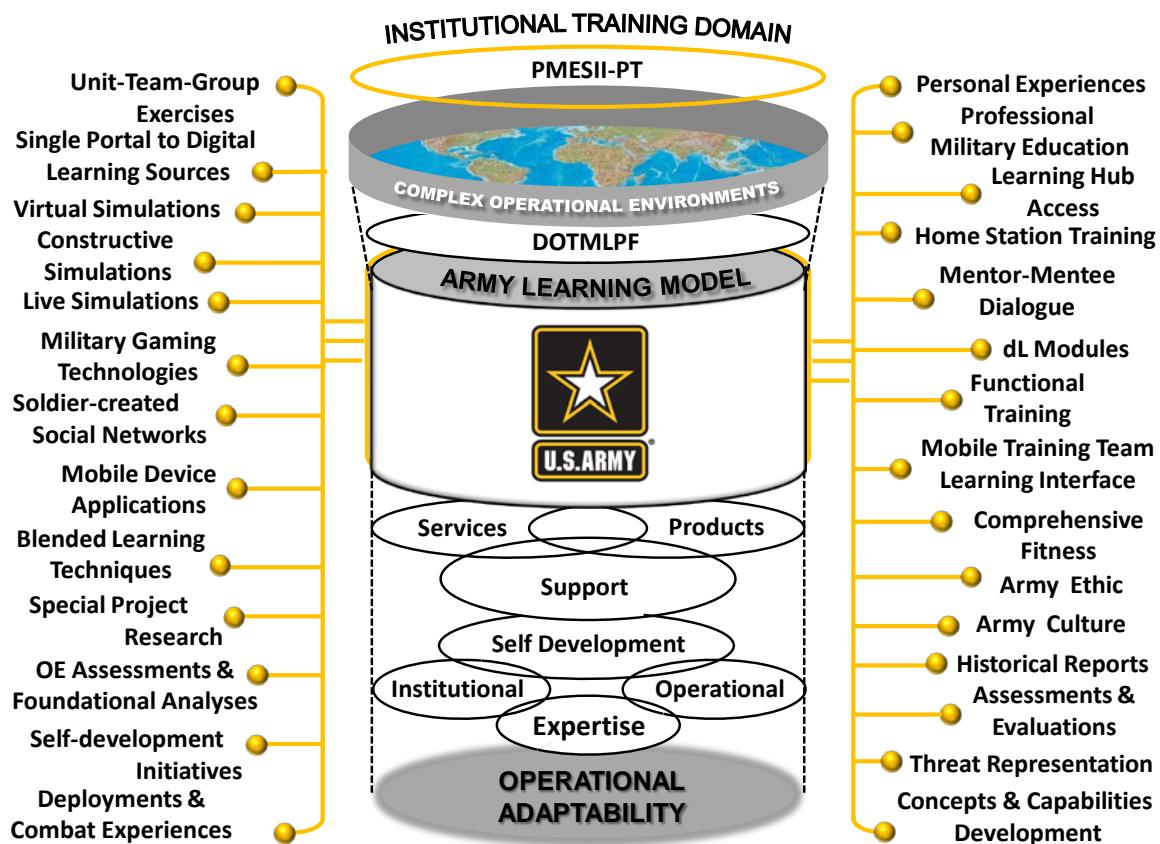


Figure 1. OEE products-services-support to Army learning experiences (examples)

The Operational Environment Enterprise (OEE) is an integrated training environment (ITE) resource that leverages technology-enabled presentations and other information for individual and collective learning experiences and expertise, as well as Army concepts and capabilities development with robust, realistic, and relevant OE conditions. The support provided by the OEE reaches across all Army learning domains with

repositories of historical documentation; current observations and lessons learned; projected capabilities requirements, development, and experiment information; and facilitates integrated live, virtual, constructive, and gaming (LVCG) environments.

The Army's institutional training domain includes but is not limited to Centers of Excellence (CoE), training base centers, schools, academies, and related programs that provide initial training and subsequent professional military education and training for Soldiers, Army leaders, and Department of the Army Civilians (DAC). The OEE leverages technology-enabled learning for individual and collective experiences and expertise, as well as Army doctrine, concepts, and capabilities development with robust, realistic, and relevant OE conditions.

The OEE enhances capabilities that create the intellectual agility and operational adaptability to prevent conflict, shape the environment, and when required, win our nation's wars. Initiatives and innovations expressed through the OEE shape the Army for future OEs and mission requirements with concepts and capabilities synchronized and integrated across Army doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF).

The Army trains and educates its members to develop agile and adaptive leaders and organizations. A complementary requirement in both the operational and institutional Army is leader self-development. Applying the *U.S. Army Mission Command Strategy FY 13-19* to deliberate and intuitive decisionmaking and effective action in dynamic conditions that require a perceptive awareness and clear understanding of the complexities in an OE.

This TC presents examples of "how to" develop effective learning experiences among the Army's integrated programs of leader development (LD), training, and experience for the Soldier and Army Civilian. The charter for the training developer, curriculum developer, and leader or commander is to identify challenging conditions for a realistic OE to the task/action and standard being developed or institutionalized. These conditions include considerations of professional military and Army civilian education, individual and collective predeployment training, and operational missions. Efficiently and effectively embedding OE conditions in the Army learning continuum maintains the Army as an adaptive and dominant land force in conjunction with unified action partners, service members, and civilians.

The Army uses operational variables of political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT) to analyze and describe the conditions of an OE. These operational variables influence each other to varied degrees dependent on time and conditions in a particular continuum of actions. An OE is complex and uncertain as variables increase or decrease in apparent or confirmed importance and effects. The dynamic nature of an OE is an essential consideration in how to train, educate, and self-develop Army members and leaders as adaptive, flexible, and versatile decisionmakers. The Army—people—must be proficient in shaping conditions in support of military plans and operations, and respond effectively to subtle or rapid changes in OE conditions in order to accomplish an Army mission in the context of unified action requirements and directives. The U.S. Army must demonstrate progressive expertise in operational adaptability. (See figure2.)

The United States Army Mission
The mission of the United States Army is to fight and win the Nation's wars through prompt and sustained land combat, as part of the joint force. We do this by—

- ★ **Organizing, equipping, and training Army forces for prompt and sustained combat incident to operations on land;**
- ★ **Integrating our capabilities with those of the other Armed Services;**
- ★ **Accomplishing all missions assigned by the President, Secretary of Defense, and combatant commanders;**
- ★ **Remaining ready while preparing for the future.**

The Army, ADP 1, C2 (2013)

Figure 2. The Army mission

As the U.S. Army improves its available LVCG collaboration of observations, lessons learned, and capabilities development and experimentation venues for Army readiness, the OEE becomes an expanding resource for OE

conditions in support of the Army mission. Complex, uncertain, and sometimes ambiguous conditions of an OE are integral to—

- Improving Army doctrinal training, education, and leader development literature.
- Recurring OE analyses and OE assessments
- Emerging representations of composite or specific adversaries, threats, or known enemies.
- Modeling and simulations of possible or projected tactical, operational, and/or strategic conditions, including the human dimension.

Change is a constant. An OE is dynamic and evolves. Training and educational experiences span individual, functional, and collective training by units, activities, and organizations, home station training (HST), field exercises and other simulations, and the combat training centers (CTCs). A companion to this training circular for integrating conditions of an OE into learning experiences is TC 7-101. Similarly, Army professional education and training span individual Soldier, civilian, and Army leader self-development through initial entry, mid-grade, intermediate, and strategic levels of learning. Development of learning experiences include products such as combined arms training strategies (CATS), warfighter training support packages (WTSPs), collective and individual tasks, drills, and staff and faculty development requirements. Applying adult learning principles uses the analysis, design, development, implementation, and evaluation (ADDIE) process to conduct instructional system design.

TC 7-102 contains three chapters and three appendices:

Chapter 1 describes the 21st Century strategic environment and the importance to the training and education developer of understanding the operational environment and integrating that OE the instructional design process to produce relevant and realistic learning experiences. The chapter provides a primer on OE analysis and a description of the operational variables (PMESII-PT) that drive analysis with discussion of the possible learning and education implications of an OE.

Chapter 2 describes, in general, the instructional design process of analysis, design, development, implementation, and evaluation (ADDIE) and important considerations for how to integrate OE conditions into that design. The chapter provides a step-by-step guide to each phase of the ADDIE process and includes an exemplary vignette to facilitate understanding.

Chapter 3 describes support provided by the Operational Environment Enterprise (OEE). This chapter provides an understanding of the resources available to the training and education developer.

Appendix 1 contains a job aid for OE integration into the ADDIE process. For each phase, there are OE considerations and relevant questions.

Appendix 2 contains an exercise design checklist as a ready reference for training and education developers who include an exercise as part of their instruction. This topic is treated in detail in TC 7-101, *Exercise Design*.

Appendix 3 contains a threat opposing force (OPFOR) tactical task list from TC 7-101. The chapter includes a concise explanation of applying OPFOR conditions in learning objectives.

This publication does not introduce or modify existing doctrinal terms. The glossary contains applicable acronyms and defined terms.

Chapter 1

21ST Century Strategic Environment

The strategic environment remains as it has always been—complex. The current strategic environment seems more ambiguous, presenting multiple layers of complexity and a multiplicity of actors challenging the Army with requirements beyond traditional warfighting skills and training. A wide-range of actors across current and projected environments—friendly and neutrals, malicious actors, and threats—will interact often in an uncoordinated manner to produce a complex environment. Neutral or even friendly actors act in accord with organizational goals that may be contrary to U.S. national interests and cause friction. Malicious actors use violence in pursuit of their goals and will potentially challenge U.S. national interests and vulnerabilities. Threats will use this complexity to their advantage and often employ hybrid strategies. This multiplicity of actors will continue to operate across operational environments during the foreseeable future.

STRATEGIC ENVIRONMENT AWARENESS

1-1. The strategic environment is the set of general conditions, circumstances, and influences throughout the world that can affect military operations. It is the global environment in which the President of the United States employs all the instruments of national power. This environment is essentially the sum of all the operational environments in which commanders and units could find themselves conducting decisive action operations. The strategic environment (SE) contains multiple OEs. (See figure 1-1.)

Operational Environment

A composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander.

JP 1-02. DOD Dictionary of Military and Associated Terms (2014)

Figure 1-1. Operational environment definition

1-2. The Army participates in many distinct OEs and simultaneous decisive action operations in the overarching SE. Conflict, post-conflict or failed state, humanitarian, disaster relief, and support and reconstruction operations will often occur simultaneously in the same OE. Such operations will require increased coordination and integration with a range of civilian domestic and international organizations. U.S. forces will interact with nongovernment organizations (NGOs), private voluntary organizations (PVOs), and humanitarian relief organizations (HROs). Training, education, and leader development venues must replicate these conditions as a dynamic, complex, and often uncertain environment.

1-3. The Army training or curriculum developer understands the training and education charter to develop and implement the best possible institutional experiences, within available resources, to improve and sustain the competence, confidence, and capabilities of Army Soldiers, leaders, civilians, and units or organizations for decisive action in the 21st century. These institutional and operational opportunities are challenging in an era of constrained and austere resources. Nonetheless, the Army training, education, and leader development programs and initiatives must prepare Soldiers, leaders, civilians, and units or organizations to

adapt rapidly to complex situations across the range of military operations in operational environments that can vary greatly from each other. The training and curriculum developer must tailor the conditions of a learning environment to provide the rigor appropriate to the stated task/action and standard.

1-4. The characteristics of conditions within an operational environment (OE) are constantly evolving. An OE exhibits complexity, volatility, uncertainty, instability, and ambiguity in events that change in speed, pace, and tempo. Complex terrain and urban environments will often limit the use of U.S. Army and unified action capabilities in mission conduct. Rules of engagement (ROE) can further limit how and when capabilities may or will be used. Myriad hybrid threats will emerge, expand, and/or recede in impact on military operations. Cyber attack is an increasingly critical threat to information technology infrastructure and the ability to effectively execute mission command. Adversaries and enemies will attempt to shape an operational environment to their advantage by changing the nature of the conflict and employing capabilities for which U.S. Army forces are at a disadvantage. Throughout this dynamic environment, human aspects of an OE are factors that must be considered in order for the Army to effectively “prevent, shape, and win.” Shaping an Army learning process embeds these types of complex environments, known and projected threats, and decisionmaking experiences.

OPERATIONAL ENVIRONMENT UNDERSTANDING

1-5. An *operational environment* is a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander (JP 3-0). Each operational environment includes the dynamics of organizational leaders and members acting and reacting to a particular set of conditions, circumstances, and influences. The interaction of the human dimension among a combination of variables defines the nature and characteristics of the operational environment.

1-6. An OE is a complex system driven by human behavior, founded in human needs and desires, and framed by culture. Conceptually, a complex operational environment is composed of many actors rapidly interacting in many different ways and evidenced by structural and interactive complexity. The expectations that govern the interactions are sometimes ambiguous and may be opaque to external actors without a deep understanding of the culture and supporting narratives. There can be clear linkage between operational variables, but often there is no consistent proportional relationship between actions and outputs in an operational environment. This non-linear relationship can cause large reactions to small actions, and elevate what U.S. forces may perceive initially as trivial to critical in nature and impact. Rapid evolution in unforeseen ways recognizes human behavior can be visible but often is not explainable without an understanding of operational variables and the context of the interactions of those variables.

1-7. There are multiple actors, individual and organizational, in an OE. While many are generally neutral or friendly, some actors qualify as threats. Other actors, while malicious, may lack either the intent or capability to harm U.S. forces. Neutral or friendly actors will act in accord with organizational or personal imperatives that may be contrary to U.S. objectives. Malicious actors or organizations will often use violence in pursuit of their goals and create significant OE challenges for U.S. forces.

MISSION COMMAND AND WARFIGHTING FUNCTIONS INTEGRATION

1-8. Army training and education must embed mission command principles and the effective conduct of warfighting functions in its training, education, and self-development. Mission command requires operational environment understanding that the nature of unified land operations is conducted in complex, ever-changing and uncertain OE. A developer uses these primary concepts, grounded in approved Army doctrine, to ensure the quality of adaptive and timely training and education of the Army Soldier, leader, and civilian. Embracing mission command and the warfighting functions are fundamental to how the Army operates and Army Soldiers, leaders, and civilians achieve assigned and implied missions.

1-9. The *mission command philosophy* is the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander’s intent to empower agile and adaptive leaders in the conduct of unified land operations (ADP 6-0 and ADRP 6-0). The mission command warfighting function (Wff) is the related mission command tasks and systems that develop and integrate those activities enabling a commander to balance the art of command and the science of control in order to integrate the other warfighting functions (mission command, movement and maneuver,

intelligence, fires, sustainment, and protection as the five primary elements of combat power) (ADP 6-0). (See figure 1-2 for an illustration of the six Wff.) Mission command is the central warfighting function.



Figure 1-2. Warfighting functions and elements of combat power

OPERATIONAL ENVIRONMENT ANALYSIS

1-10. The framework of OE analysis provides the training and curriculum developer with a holistic, scalable, and flexible method with which to generate an understanding of an operational environment. The framework applies the eight operational variables to a specific operational environment, a group of operational environments, or the strategic environment. The concept of analysis has applications in operations, training, education, leader development, concepts and capabilities development, and doctrine development. The operational environment framework of analysis can be applied to all levels of learning.

1-11. Army Doctrine Publication (ADP) 3-0 and Army Doctrine Reference Publication (ADRP) 3-0 describe the OE in terms of eight operational variables. By applying the operational variables to a specific operational environment, the training and curriculum developers, in cooperation with subject matter experts, gain a holistic and detailed understanding of that OE. Analysis continues systemically to identify existing and potential relationships among aspects of each of the operational variables in order to gain a holistic view of the OE. Those operational variables, often framed with the acronym PMESII-PT, are—

- Political.
- Military.
- Economic.
- Social.
- Infrastructure.
- Information.
- Physical terrain.
- Time.

1-12. Army institutions and operating forces may use these eight operational variables to better understand, analyze, and intuit the broad environmental impacts on their missions. ADP 7-0 and ADRP 7-0 establish “understanding of the OE” as one of the 11 Army principles of unit training. Integrating OE conditions provides commanders the full range of experiences needed to produce trained units and capable leaders. Commanders build the training environment based on an actual, mission defined OE or an expected OE. The actual or expected OE is described based on analysis of current and probable conditions within a country or region. The *Decisive Action Training Environment (DATE)*, posted on the Army Training Network (ATN), presents a composite of conditions for training of U.S. forces. For example, an Army organization that is regionally aligned with Africa Command (AFRICOM) may design a training environment focused on a specific known or likely area of deployment within a single country, or the commander could design an environment that is a composite of conditions throughout a part of the area of responsibility (AOR). Regardless of what OE training or education venues portray, conditions must replicate expected operational environment challenges and opportunities as realistically as possible.

1-13. A leader development environment can be a representation of any one OE or a composite of multiple OEs. The *Army Leader Development Strategy (ALDS) 2013* charters an emphasis on developing leaders to succeed in the challenges and opportunities of current and future OE. A versatile arrangement of conditions using the operational variables can offer planned as well as contingent tasks and adaptive learning among multiple tactical, operational, and strategic settings. The *Army Training Strategy* widens a leadership perspective for the broad range of missions that Army leaders must be ready to conduct adaptively with doctrine-based understanding, disciplined initiative and prudent risktaking, and mission command.

1-14. The purpose of OE integration in training, education, and leader development is to produce a force of leaders, soldiers, civilians, and units capable of rapidly adapting and optimizing capabilities to achieve mission objectives. The current and future realities are complex and ever-changing environments within which the Army does and will conduct operations. Complexities include but are not limited to factors, considerations, and assumptions on—

- Mission.
- Essential and critical tasks (CTs).
- Known and anticipated threat forces and capabilities.
- Available friendly forces and capabilities.
- Operational land area in rural and urban configurations, and maritime, air, cyber, and space impacts.
- Relevant population, civil considerations, and demographic data.
- Limitations and constraints on military operations.

OPERATIONAL VARIABLES

1-15. One method in dealing with the OE is to use the Army's doctrinal framework to analyze across eight operational variables. The framework is a baseline to analyze an operational environment. These variables and the interactions among variables determine the nature of a particular operational environment. By studying the variables to a specific operational environment, the training and curriculum developer appreciates the conditions in the environment in which a task/action is to be achieved. The following description of each operational variable and selected example questions can initiate OE analysis by the developer and indicate related issues to research how a variable will be further developed and impact as conditions for a task/action.

Political

1-16. The political variable describes the distribution of responsibility and power at all levels of governance—formally constituted authorities as well as informal or covert political powers. This variable discusses all relevant political conditions within the operational environment, as well as associated regional and global political conditions. The political variable answers the following sample questions:

- What is the effectiveness and legitimacy of the current government?
- What political parties are present in the OE?
- What are the current domestic political issues?
- What are the most vulnerable sub-cultures in the OE?
- What is the attitude of the population, and political and military leadership toward the U.S.?

Military

1-17. The military variable explores the military and/or paramilitary capabilities of all relevant actors (enemy, friendly, and neutral) in a selected operational environment. Analysis includes organizational structure and equipment holdings for capabilities and limitations. Sample questions of the military variable are:

- What is the composition of the military force(s) operating across the OE?
- What threat actors are operating in the OE?

- How will threat actors use a local populace in their operations?
- What military capability does each threat actor and coalition and friendly force possess?
- What are the limitations of the military capabilities possessed by each threat/actor and the potential to exploit those limitations?

Economic

1-18. The economic variable encompasses individual and group behaviors related to producing, distributing, and consuming resources across an OE. Interaction means include physical or electronic communications and transfer. Analysis considers influences outside an OE that affect the economic status of the specified OE. The economic variable addresses the following sample questions:

- What illegal economic activities occur in the OE?
- What is the basis of the economy? (agriculture, manufacturing, technology, etc.)
- What is nature of the banking system?

Social

1-19. The social variable describes the cultural, religious, and ethnic composition within an OE. Analysis includes beliefs, values, customs, and behaviors of society members. The social variable addresses the following sample questions:

- What is the cultural makeup of the OE?
- How is the population distributed?
- How many internally displaced persons (IDPs) and refugees are in the OE?
- What is the religious and ethnic diversity in the OE?

Information

1-20. The information variable depicts the nature, scope, and effects of individuals, organizations, and systems that collect, process, disseminate, or act on information. The information environment considers the formal and informal communication means among people, as well as the use of a global information environment effect on a particular OE. Sample issues for the information variable are:

- What are the nature and contact demographics of the public communications media?
- How controlled or open is the information environment?
- What threat information warfare (INFOWAR) capabilities are used in the specified OE?

Infrastructure

1-21. The infrastructure variable portrays the basic facilities, services, and installations needed for the functioning of a community or society. The degree of macro- or micro- details depends on the fidelity required to present conditions in support of a task/action. The infrastructure variable addresses the following sample questions:

- What are the common construction patterns?
- What utilities are present and operational?
- What transportation networks exist?

Physical Environment

1-22. The physical environment variable explains the geography and man-made structures. Other necessary considerations are the climate and weather of an OE. Sample issues for the physical environment variable include:

- What types of terrain exist within the OE?
- What types of weather conditions are likely to occur during a mission context?
- What natural disasters are most likely to occur in this OE?

Time

1-23. The time variable describes the timing and duration of activities, events, or conditions within an OE, as well as how timing and duration are perceived by various actors within the operational environment. Time is a constant. The time variable addresses the following sample questions:

- What are the key dates, time periods, or events?
- What is the cultural perception of time?

SUBVARIABLES OF THE EIGHT OPERATIONAL VARIABLES

1-24. Each of the eight operational variables has associated subvariables or subordinate categories of interest. The degree to which each subvariable provides useful information relevant to a particular OE depends on the situation and training-education-leader development requirement task/action. (See table 1-1 for aspects of variables and subvariables.)

Table 1-1. Operational variables and subvariables (2014)

Political	Military	Economic
Attitudes toward the U.S. Centers of political power Type of government Government effectiveness Government legitimacy Influential political groups	Military forces Government paramilitary forces Non-state paramilitary forces Unarmed combatants Nonmilitary armed combatants Military functions	Economic diversity Employment status Economic activity Illegal economic activity Banking
Social	Infrastructure	Information
Demographic mix Social volatility Education level Ethnic diversity Religious diversity Population movement Common languages Criminal activity Human rights Diseases Centers of social power Cultural norms and values	Construction pattern Urban zones Utilities present Services Transportation architecture	Public communications media Information warfare (INFOWAR) Intelligence apparatus Information management
Physical Environment	Time	
Terrain Natural hazards Climate Weather	Cultural perception of time Measurement of Time Key dates, Key time periods, Key events	

TRAINING AND EDUCATION INTEGRATION OF OPERATIONAL VARIABLES

1-25. Army training and education integrates the manifestations, observations, insights, and lessons learned from deployed forces in OEs for training events, education forums, and leader development activities. Potential adversaries continue to learn and adapt to U.S. operations. Not all of the enemies Army forces may confront subscribe to the accepted rules of warfare or the U.S. value system. When these facts are combined with other factors that affect decisive action, leaders and units face operational conditions that demand perceptive situational awareness and keen situational understanding in prudent risk-taking and deliberate decisions and actions.

1-26. In understanding an OE, training developers focus on defining, analyzing, and synthesizing the characteristics of each of the operational variables as it relates to the environment under review. This technique captures the relevant aspects of all conditions, circumstances, and influences in a systematic process that result in the fullest analysis and understanding of any operational environment.

1-27. Each operational environment is dynamic. This characteristic is primarily the result of the ever-changing nature of operational variables, their interactions, and the resulting cascading implications of such interactions. As the variables interact within a specific OE, resulting consequences alter the nature of other variables and subsequent interactions. These factors require continual analysis of each OE in order to understand changing conditions and implications. The Army operates typically in multicultural environments that include unified action partners. Events require an expert understanding of cultures and languages within which the Army operates.

1-28. The training developer understands the audience that the training or education conditions of an OE are to affect. A desired learning level complements this shaping of how complex or simple the conditions must be in order to accomplish the identified task/action standard. Four levels of Army professional military education (PME) and Civilian Education System (CES) illustrate the progressive nature that underpins the Army Leader Development Strategy (ALDS). Each level has tasks or actions, conditions, and standards focused on the responsibilities, authority, and decisionmaking expected at that level. Learning and understanding the opportunities or limitations of an OE, analyzing complex operational variables, and accepting prudent risk in uncertain, volatile, or ambiguous conditions must promote disciplined initiative and skillful conduct of actions and leadership.

- Initial Entry Level: This level for military personnel focuses on the period of time from recruitment through the completion of Initial Entry Training (IET) and Initial Military Training (IMT). Soldiers and junior officers enter their respective career path trajectory at a resident training center where direct observation and performance feedback is critical to developing initial military skills and moral strength. Pre-Commissioning and IMT courses in this level for officer personnel include training through either the United States Military Academy (USMA), Reserve Officer Training Corps (ROTC), Officer Candidate School (OCS), the Warrant Officer Candidate School (WOCS), Warrant Officer Basic Course (WOBC), and the Basic Officer Leaders Course A and B. IET courses in this level for enlisted personnel include the Basic Combat Training (BCT), Advanced Individual Training (AIT), and One Station Unit Training (OSUT). This stage for civilian personnel focuses on the period of attendance at the Foundation Course level.
- Mid-Grade Level: This is a multi-year career phase where the value of experience is particularly important. Noncommissioned officers (NCOs), officers, and civilians grow and develop professional confidence through direct operational experience, observing role models, interacting with peers, and from mentors. Professional Military Education (PME) courses in this level for officer personnel include the School for Advanced Leadership and Tactics (SALT), the Captain's Career Course (CCC), and the Warrant Officer Advanced Course (WOAC). PME courses in this level for Non-Commissioned Officer (NCO) personnel include the Warrior Leader Course, Structured Self Development (SSD) Level 1, and Advanced Leader Course (ALC). This level for civilian personnel focuses on the period of attendance at the Basic Course level.
- Intermediate Level: This level is considered to be a transition point in the career that brings an increased level and scope of responsibility. Learning events provide NCOs, officers, and civilians additional standardized knowledge that is critical to provide a broad foundation for success. Professional Military Education (PME) courses in this level for officer personnel include the Intermediate Level Education Course (ILE) and the Warrant Officer Staff Course (WOSC)/Warrant Officer Intermediate Level Education (WOILE). PME courses in this level for NCO personnel include the Structured Self Development (SSD) Level 3 and Senior Leader Course (SLC). This level for civilian personnel focuses on the period of attendance at the Intermediate Course level.
- Strategic Level: This level is considered to be the Army's capstone level of PME for NCOs, officers, and civilians. PME at this level prepares them for strategic levels of leadership by providing a broad contextual understanding of national security issues and their role as senior leaders. Professional Military Education (PME) courses in this level for officer personnel include the Senior Service

College (SSC) and the Warrant Officer Senior Staff Course (WOSSC)/Warrant Officer Senior Service Education (WOSSE). PME courses in this level for NCO personnel include the Structured Self Development (SSD) Level 4, Sergeant Major Course (SMC), and Structured Self Development (SSD) Level 5. This level for civilian personnel focuses on the period of attendance at the Advanced Course level.

TRAINING AND EDUCATION IMPLICATIONS

1-29. Army forces must have the mental and physical agility to adapt rapidly and operate effectively among the missions that reside within decisive action. By definition, *decisive action* is the continuous and simultaneous combinations of offensive, defensive, and stability or defense support of civil authorities (ADRP 3-0). The institutional training domain must present these types of competing demands and complex dilemmas to match tactical actions with strategic objectives. Training developers must embed the challenges of decisive action with the disciplined learning of Army mission command philosophy and exercise, assess, and evaluate the capabilities and limitations of the Army warfighting functions. Key enablers for Army learning in the institutional force include—

- Professional military education (PME), DoD and Joint schools, and the Army Civilian Education System (CES).
- Professional self-development.
- Individual training and education.
- Functional training and education.
- Collective training.

1-30. Long-term implications of the SE conditions are uncertain. Emergent events can lead to a multitude of potential alternative security futures that can range from variants of the status quo, to a more violent and unstable region or world, or the possibility of an era of greater cooperation and more effective international institutions. As the training and curriculum developer studies and identifies the probable conditions in future persistent conflict for an OE, implications include but are not limited to the following conditions:

- Simultaneous operations with multiple mission tasks rather than sequential, phased operations.
- Societal friction due to identity and/or deprivation-based social, ethnic, and/or religious allegiances.
- Increased criminality that may include genocide and/or mass atrocity.
- Irregular warfare (IW) between and/or among states, non-state actors, insurgent organizations, guerrilla units, terrorist groups, criminal organizations, and relevant populations.
- Regular military forces with near-peer and/or adaptive capabilities in specific functional areas.
- Increased military operations in complex terrain to mitigate technological advantages of an enemy.
- Cultural differences and lack of understanding that lead to broadening or deepening a conflict.
- Threats and hybrid threat that acquire and employ specific technologies that equal or exceed U.S. capability. Conversely, threats and hybrid threat can use very simple means, such as couriers, to remain masked from monitoring by sophisticated technologies.
- Information operations and exploited near-simultaneous local, regional, and global media coverage of events will remain a norm in either obtaining or sustaining support, and dissuading or deterring support by relevant populations and influential leaders, organizations, and/or states.
- Weather that can provide threat forces diverse opportunities to counter or degrade U.S. intelligence, surveillance, reconnaissance, and precision target acquisition.
- A common perception among adversaries and enemies that the U.S. is not willing to sustain casualties in persistent conflict.

- Cultural values and ROE that comply with the law of war and conventions on war and armed conflict create potential vulnerabilities for adversaries and/or enemies to exploit.
- Social media exploitation by adversaries and/or enemies to advance tactical, operational, and/or strategic objectives.

TRAINING AND EDUCATION CONDITIONS

1-31. As the Army transitions to regionally aligned forces, understanding and integrating the rigor and complexities of an OE in Army training and education ensures that an appropriate set of conditions is designed, developed and implemented in the learning event by the training developer. The training and curriculum developer must determine the conditions that address current OEs and also prepare for future contingencies for a globally-engaged Army. The philosophy and principles of mission command guide the training developer in how to perceive and understand these OEs and training and education requirements.

1-32. Chapter 2 provides a five-phase training and education process of how to translate an OE and other learning conditions into relevant learning experiences and expertise in the institutional and operational domains. The progressive outcome of this learning model process builds competence and confidence in tactical and technical proficiencies, leader decisionmaking, and embeds a career-long continuum for improving the required quality of training and education for Army Soldier, leader, and civilian leadership.

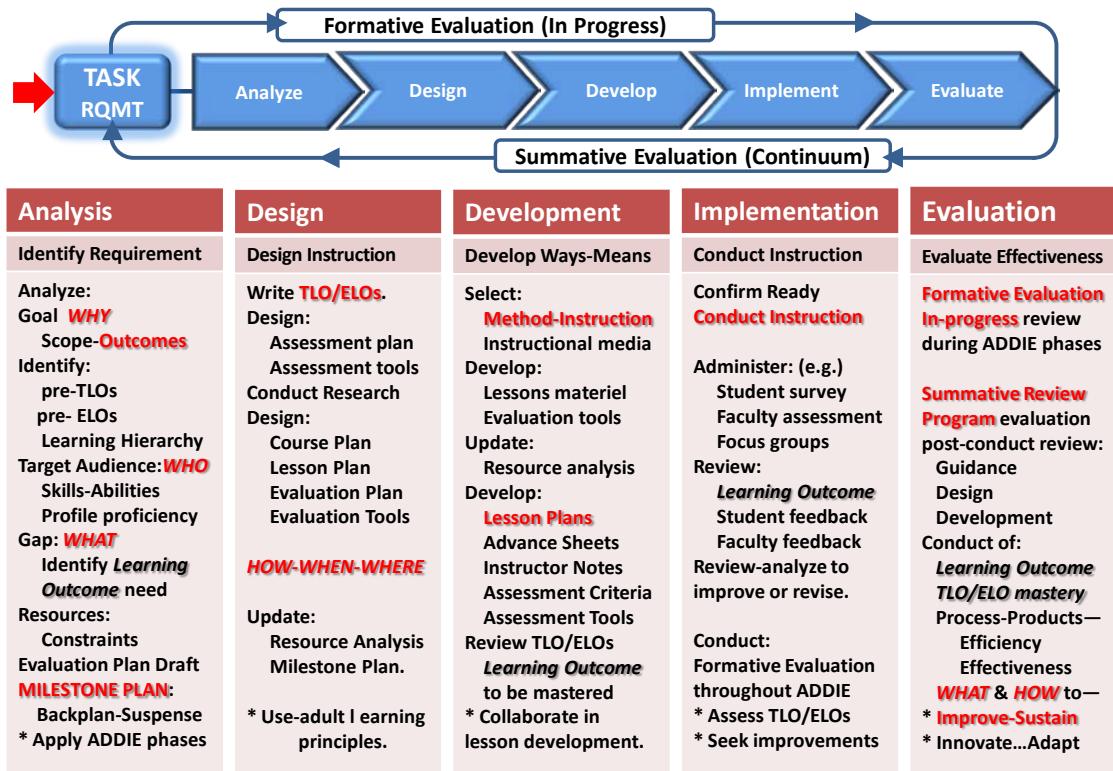
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Chapter 2

Analysis, Design, Development, Implementation, and Evaluation

There are five phases the training and curriculum developer progresses through to develop and institute training, education, and leader or self-development material. The analysis, design, development, implementation, and evaluation (ADDIE) process takes the training and curriculum developer from the initial determination of a requirement or need through the analysis, design, and development phases; to implementation of a learning experience; and continues a learning continuum with evaluation improvements of training or education products-process. The required outcome of this continuum is a sustained and/or improved readiness to standards.

2-1. The analysis, design, development, implementation, and evaluation (ADDIE) construct is a generic process with which to conduct instructional system design. Adult learning principles are central to creating and sustaining an effective continuum of learning. The decision to integrate operational environment (OE) conditions in the development of new training and education products, or during the revision of existing training and education products, bridges an analysis of task or action to be experienced with the standard to be achieved. The Operational Environment Enterprise (OEE) is central to supporting the training and curriculum developer with OE conditions and resources. (Figure 2-1 summarizes the ADDIE process.)



TASK RQMT: Task requirement affects leader and self-development, individual and collective training, professional education, mission.
 TLO: terminal learning objective/ELO: enabling learning objective.

Figure 2-1. ADDIE training-education-leader development continuum

2-2. As training and curriculum developers integrate information and resources to best support identified requirements, the value of the OEE is most evident in the analysis, design, and development phases of the ADDIE process. Nonetheless, OEE considerations affect all five phases of the ADDIE process through the formative evaluations of each phase and the continuum of summative evaluation. The OEE is a repository and provider of multiple resources that support credible conditions required for quality training, education, and leader development.

2-3. Examples of OEE products and services are located in this chapter and chapter 3 “Operational Environment Enterprise (OEE) Support” of this training circular. Integration and updates to the OEE products and services are a recurring factor of training and curriculum plans and programs. The training developer and curriculum developer recognize that OEE support can be focused in elements of the Army Learning Model (ALM) and on the people involved in the learning experience. Requirements have an impact on the development and proficiency of the trainer and educator, and the preliminary knowledge and/or skill sets required of the learner. The ways and means for both of these groups is amplified by how the training or education is designed, developed, and administered. Whether training or education, the environment of learning occurs within live, virtual, constructive, and/or gaming domains. (See figure 2-2.)

U.S. Army Learning Model Implication

The implication for the Army is to create an efficient, versatile, integrated, and effective unit-training construct that is adaptive, to [an] OE and responsive to commanders, leaders, and trainers as they develop unit training to meet AFFORGEN readiness objectives. The construct must be scalable, tailororable, and dynamic to allow commanders to train units at different levels of fidelity...the lines between the institutional domain and the operational domain must [blend].

Figure 2-2. Training and education implication for Army readiness

2-4. Threat Managers provide threat and OE support to training and curriculum development. As subject matter experts, their support assists in the determination on what level of OE complexity will be required for a task/action and standard. The Threat Manager or a designated OE subject matter expert (SME) is involved at each level of the ADDIE process to ensure an accurate and appropriate OE condition to a particular learning requirement.

2-5. Identifying resource requirements are critical points during the entire ADDIE process. Early analysis and planning for resources are key factors in order to manage the time involved in securing the necessary materiel and/or expertise. Proponents identify resource requirements, availability, and constraints for equipment, facilities, funds, personnel, and time. Resource analysis incorporates learning strategies and implementation of the Army Learning Model (ALM) 2015. Allocation and commitment of resources support a level of fidelity required of a particular learning episode or event. Three levels of fidelity (high, medium, and low) in collective training also have applicability to other learning environments. These resourcing levels are:

- *High fidelity* is the condition-setting training environment of capabilities and resources needed to replicate most complexities of an OE, present realistic signatures and effects to stimulate all combined arms decisive actions and unified action enablers, and produce ill-structured problems for leader development. These tasks are set within the context of achieving all multi-echelon unit training tasks and objectives.
- *Medium fidelity* is a reduced condition-setting training environment of capabilities and resources needed to replicate the majority of OE complexities to stimulate key combined arms decisive actions and unified action enablers, and present partial signatures and effects needed to stimulate primary multi-echelon tasks and training objectives.

- *Low fidelity* is the minimal requirements and resources needed to replicate OE conditions that drive single echelon collective training tasks and objectives.

2-6. The ADDIE process improves a learner-centric model and institutes the most effective learning methods for the required outcomes based on the analysis of the audience. Learning environments vary dependent on the training or education need and available resources. These environments include self-structured, peer-based, informal social-based network, immersive, and/or formal academic or training venues. An example of condition is a cyber environment and requirements for training and/or educational experience and learning. In order to exemplify the integration of OE conditions into training and education development, this chapter builds a vignette based on a gap in cyber operations (see figure 2-3), and traces the development of particular conditions through each phase of the ADDIE process. Fundamental learning model considerations in these examples and/or similar experiences are—

- Mission command and unity of effort in the conduct of U.S. Army mission command philosophy.
- Collaborative and/or individual knowledge-gathering and/or problem-solving experiences.
- Tailored learning episodes and events programmed in a logical sequence for experience and expertise development.
- Conduct of mission tasks and orders with a clear understanding and application of commander's intent, prudent risk-taking, and disciplined initiative.
- Blended technology-enabled instructional approaches that combine variations of live, virtual, constructive, and gaming (LVCG) in learning appropriate to a particular experiential environment.

Critical Cyber Trends Converging

Several critical governmental, commercial, and societal changes are converging that will threaten a safe and secure online environment. In the past several years, many aspects of life have migrated to the Internet and digital networks. These include essential government functions, industry and commerce, health care, social communication, and personal information...Foreign threats...pose growing risks to these functions as the public continues to increase its use of and trust in digital infrastructures and technologies.

Computer network exploitation and disruption activities such as denial-of-service attacks will continue...the likelihood of a destructive attack that deletes information or renders systems inoperable will increase as malware and attack tradecraft proliferate.

Many countries are creating cyber defense institutions within their national security establishments...estimate that several of these [countries] will likely be responsible for offensive cyber operations as well...Cyber criminals play a major role in the international development, modification, and proliferation of malicious software and illicit networks...Terrorist organizations have expressed interest in developing offensive cyber capabilities. They continue to use cyberspace for propaganda and influence operations, financial activities, and personnel recruitment.

Worldwide Threat Assessment of the US Intelligence Community 2014
Director of National intelligence

Figure 2-3. Cyber gap introduction (example)

2-7. Core competencies for Army Soldiers, leaders and civilians are criteria to assess and evaluate particular learning experiences. Although comprehensive evaluation of competencies may not be appropriate in every learning experience, one or more competency is integral to any Army learning experience. Learning outcomes incorporate competencies and attributes in a learning experience and can include—

- Character and accountability.
- Comprehensive fitness.
- Adaptability and initiative.
- Attitude of lifelong learning.
- Teamwork, team-building, and collaboration.
- Communication and engagement.
- Critical thinking and decision-making.
- Creative inquisitiveness with intuition-innovation.
- Cultural awareness and understanding.
- Tactical proficiency.
- Technical expertise.

2-8. Sections 1 through 5 of this chapter provide a discussion on functions in each phase of the ADDIE process, and present considerations on how to integrate conditions of a selected OE in training and/or education. Considerations of “how to” for the training and curriculum developer and commander or leader are reinforced with sample questions and aspects at Appendix A, “OE Integration Job Aid for the Army Learning Model,” and Appendix B, “Exercise Design Checklist.” Concise vignettes throughout chapter 2 and chapter 3 illustrate examples of how a developer can use the five-phase ADDIE process to integrate operational environment conditions with resources and support learning with the Operational Environment Enterprise (OEE). An illustration of each ADDIE phase spotlights ideas of how OEE resources can support the progressive training and/or education programs for Army readiness.

SECTION I - ANALYSIS

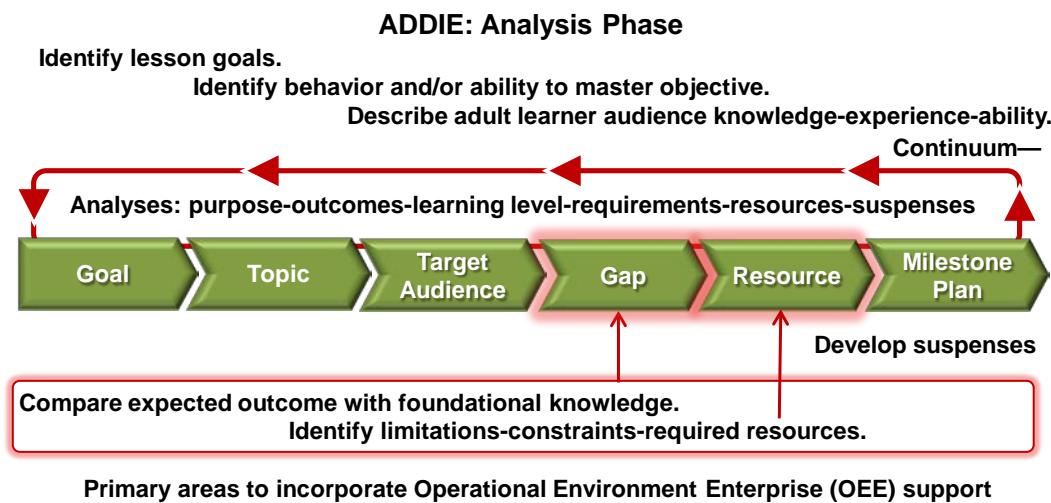
2-9. Analysis is the ADDIE phase used to analyze and determine a need for training and/or education. The primary analysis processes used to identify the learning products to be designed (revised or created), developed, implemented, and evaluated are needs analysis, mission analysis that includes target audience analysis and job analysis, and outcomes analysis. Analysis provides information about—

- Skill or knowledge requirement to be trained or learned, and either sustained or improved.
- Conditions in which the requirement is to be performed or the knowledge used.
- Standards of performance to be achieved and maintained.

2-10. Analysis is, in general, a process of investigating a triggering circumstance that indicates a state that is less than a required or expected capability, or suggests an actual or perceived performance shortcoming or deficiency. When a gap in acceptable performance or operation is identified, analysis determines how that change might or does affect critical Army operations and how the problem area can be solved. The training and curriculum developer conceptualize the impact of the changes on how Army Professionals ethically, effectively, and efficiently conduct unified land operations. The curriculum or training developer must integrate the principles of the Army Ethic in the process of identifying the required skills, knowledge and corresponding tasks. When required, complementary actions translate the impact of a gap into required skills and knowledge requirements, and corresponding tasks or actions that remedy Soldier and unit skills or knowledge proficiency to an acceptable standard of performance. Analysis may identify problem sources

other than training and education such as policies, motivation, or inadequate resources or materiel. Any one of these could drive a requirement to revise training or education venues.

2-11. Proponents focus on essential and critical requirements and desired outcomes. Developers specify a target audience and compile a prospective list of individual or collective critical tasks. The developer integrates lessons learned from Army experiences, experimentation, and testing venues. Proponents sustain a continuum of needs analysis and ensure horizontal and vertical alignment of lessons learned as well as emergent information and observations into training and education products. (See figure 2-4.)



2-12. The analysis phase begins with a triggering circumstance. The triggering circumstance may come from a variety of sources in the form of a problem to be resolved. Analysis of the circumstance can result in identification of a training or education gap. However, not all triggering circumstances result in a need to change training and education. They may change other DOTMLPF factors. While there are innumerable potential triggering circumstances, generally triggering circumstances will fall into one of the following categories:

- Change in OE conditions. The triggering circumstance here may be the result of changes in current conditions in the security environment, anticipated changes in a future OE, emerging capabilities of potential adversaries, or anticipated advances in technology available to U.S. or potential adversaries. While it may be intuitive to think that this area is where OE considerations are most impactful, that is not necessarily true. The triggering circumstance only begins analysis. Regardless of the trigger, the training and curriculum developer must determine the training or education gap in terms of tasks, conditions, or standards. It is likely that the result of an analysis in a change of OE conditions will result in a gap in learning conditions, but it could also result in tasks or standards gaps.
- Change in DOTMLPF factors. The DOTMLPF domains are used to determine the capabilities required for building and employing military forces. They are extensive and changes will require the training and curriculum developer determine potential impacts on training and education programs. Changes to the way the Army operates (doctrine), changes in force structure (organization), development of new training requirements, new equipment fielding (materiel), development of new leader attributes (leadership and education), changes in manning or staffing levels (personnel), or training area closure (facilities) can result in identified gaps. Any one of these changes, with the possible exception of facilities, has to be placed in the context of an expected OE and the interaction of that environment (including threats, terrain and weather, populations, etc.) with Army forces in order to understand the potential impact on training and education.

- Lessons learned from operations. During the analysis phase it is important for the developer to consider and incorporate approved lessons learned. For the Army to be a learning organization that develops Soldiers, leaders, and civilians for operational adaptability, the institution must be able to rapidly integrate lessons learned into training and education programs. The lessons learned will usually take the form of new Soldier or unit tactics, techniques, and procedures (TTPs). In most cases, the OE is a significant component of any lesson learned often manifested as a change in OE conditions.
- Inadequate results of current training or education based on evaluations. This category is essentially the T of DOTMLPF. When a training and education event produces poor results, institutional evaluations or reports from operational units must analyze and identify the areas that must be corrected. Analysis reviews the basics of task, conditions, and standards. A primary OE consideration is to determine if the conditions for the training or education event are appropriate, complete, or realistic enough. When significant change occurs, there may be a periodic requirement for course revision. A course may become obsolete or outdated for many reasons, including changes in the security environment that invalidates current TTPs. Lesson revisions are mandatory immediately when task performance threatens survivability, mission accomplishment, or a major environmental or safety impact is identified.
- Introduction of new methods of instruction or instructional technologies. Training and education is impacted by new technologies, cognitive science developments, and evolving instructional techniques. These changes can develop gradually or appear rapidly in this learning domain. Correspondingly, the complexity of the OE and the Army need for Soldiers, leaders, and civilians who can apply judgment and operate effectively within this complexity, requires realistic training and education conditions. This convergence may drive training developers to blend fundamental learning techniques with technology-supported methods to improve instruction and the learning that results.
- Changes in plans and policies. Senior leader decisions can change the requirements for training and education even absent the factors above. These changes could take the form of mandated tasks, restrictions in time, resources, or budget, or change in focus among others. While a change in the OE may drive new plans or policies, it is important to establish the specific conditions required to meet the identified training or education gap. (See figure 2-5.)

ADDIE Analysis and the OEE

In the analysis phase, the developer determines requirements for cyber awareness and preparedness indicated in capabilities based assessments of U.S. Army cyber defenses and readiness. The developer identifies goals, behaviors and abilities to master, and how to best present learning with available resources. The OEE provides means that support U.S. Army institutional and operational communities to train, educate, and operate in contested cyber environments, manage and secure information, and ensure effective network operations and defense of Army networks; and when directed, conduct cyberspace operations in support of decisive action.

Figure 2-5. Cyber gap vignette-Analysis (example)

2-13. The resources available from the OEE have a direct impact on analysis outcomes among collective and individual training and related professional education. Nonetheless, several fundamental aspects of learning model analysis are universal. Analysis components of an ADDIE process include:

- Goal analysis identifies how the course supports the institutional mission, vision, and learning outcomes. Analysis results in a course goal or goals.

- Topic analysis specifies topics that support identified goals and learning outcomes.
- Target audience analysis describes students' current knowledge and experiences, and suggests effective training/education delivery methods.
- Gap analysis compares the desired learning outcome of the above topic analysis with the student's pre-instruction knowledge determined in a target audience analysis.
- Resource analysis identifies resources, availability, and constraints.
- Preliminary evaluation and milestone planning, and a tracking system of the developmental processes may include OEE elements; however, the gap and resource analyses are critical to identifying what is available to set the appropriate learning conditions.

NEEDS ANALYSIS

2-14. Needs analysis determines what is needed to solve or mitigate known or anticipated gaps between current Army capabilities and required Army capabilities. The training and/or curriculum developer focus on comprehending the foundational knowledge and critical tasks or actions required in the learning. A learning outcome states the level of ability and type of competence a learner will achieve at the conclusion of a learning experience.

2-15. Analysis begins with an understanding and appreciation of current and projected future operational environments. Resources include results of current training or education, based on evaluations that indicate inadequate performance to standards. New technologies, cognitive science developments, and evolving instructional techniques and other learning skills can rapidly change a learning experience. Conditions such as threats knowledge, capabilities and limitations, and technology advances or limitations on the ability of people to perform actions or tasks shape the outcomes requirement. These conditions may indicate a requirement for new methods of instruction or instructional technologies.

2-16. Resource limitations and/or constraints are a norm. Learning can be affected by constraints such as maximum allowed course length, manpower availability, budget allocation, and required student load. Other typical areas for resource analysis include access to training areas, classroom information technology capabilities, training simulations and simulator limitations, and available time. Senior leader decisions can change the requirements and availability of resources for learning experiences. These changes could take the form of mandated tasks, restrictions in time, resources, or budget, or change in learning focus.

MISSION ANALYSIS

2-17. Mission analysis studies and determines the specified and implied tasks or actions that must be performed to standards in order to accomplish a mission. Mission analysis is a continuous analytic process centered on a mission essential task list (METL), unit task list, job or topic requirements, or other specified directives. Factors that prompt mission analysis include but are not limited to a—

- Revised operational concept and employment doctrine.
- Mission change of a unit, organization, or activity.
- Known, emergent, or anticipated threat in an operational environment.
- New weapon system and/or other military materiel.
- Degradation or improvement in personnel and organizational skill sets.
- Different operational environment factors (PMESII-PT) that effect a mission.
- Changes in the DA Standardized METL for the parent higher echelon organization.

2-18. The mission analysis output is the Unit Task List (UTL). The UTL is a list of existing collective tasks or emergent collective tasks to be designed and developed for a specific unit-type based on missions identified in the table of organization and equipment (TOE). The UTL reflects terminology for company-

size and higher echelon units as stated in FM 7-15, *Army Universal Task List* (AUTL) with changes. See TRADOC Administrative Publications web site for specific "how to" information related to mission analysis. Mission analysis data is an output that may also determine the need for additional job analyses, individual tasks, and/or collective tasks and actions.

OUTCOMES ANALYSIS

2-19. Outcomes analysis is required for all training and course design or course revision. Proponents identify the expected outcomes that signify successful completion of an action or task. Outcomes must describe what an individual, unit, organization, and/or activity must be able to be, know, or do within a set of operational conditions.

2-20. Command involvement is integral to the development of training and education outcomes. Outcomes incorporate the commander's or leader's intent and clearly state the focus for training and education and level of observable demonstration and/or performance to standards. Leader development is an overarching perspective to required outcomes. Command approval completes each phase of outcome analysis until the next formal review of outcome analysis. These outcomes must include the Army Profession General Learning Outcomes and align with the Army Ethic in a way which produces Soldiers, Army Civilians, and Leaders capable of making credible decisions during peace, war, and persistent conflict.

SECTION II - DESIGN

2-21. During the design phase of the ADDIE process, data analysis is transformed into a working template for training and education products. The design phase uses the outcomes from the analysis phase to scope the parameters of design. The developer identifies the objective(s), which vary according to the type of instruction to implement, in order to satisfactorily address a requirement or gap. The developer confirms learning objectives with the approval authority, plans what training/instruction will look like when it is complete, and describes the context in which the task or learning will successfully occur. (See figure 2-6.)

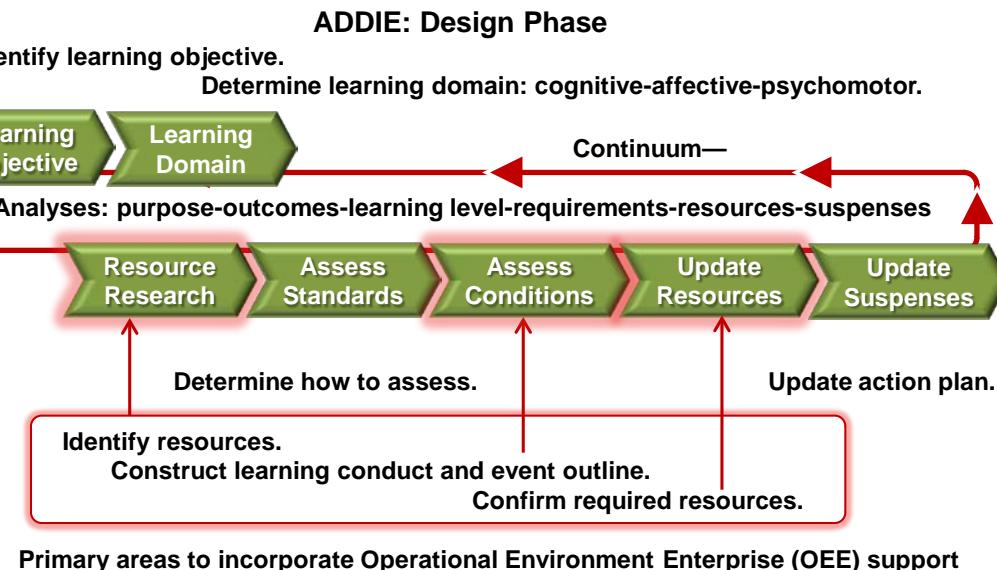


Figure 2-6. Design phase of ADDIE and OEE considerations

2-22. Design identifies the task or action to be learned, the conditional situation for a particular task or action, and the required measures of performance to achieve a standard. The developer determines learner assessment methods, lesson sequence, methods of instruction, and media and/or other criteria needed for learning. Design produces the details of when, where, and how outcomes are to be achieved. Tasks and actions are usually categorized in one of three learning domains. Those three learning domains are cognitive, affective, and psychomotor.

2-23. The developer takes the OE perspective determined in the analysis phase, and selects the best methods of available resources to achieve necessary conditions in order to accomplish essential tasks and critical tasks to desired outcomes. Design identifies relevant OE considerations and requirements such as—

- Role players that accurately portray noncombatants, threat regular forces, and threat irregular forces for training and education.
- Training aids, devices, simulators, and simulations (TADSS).
- Terrain.

2-24. The training and curriculum developer uses the products created during the analysis phase to identify the course and lesson components. During this phase, the developer translates topic lists into terminal learning objectives (TLOs) and supporting enabling learning objectives (ELOs). Design effort arranges TLOs and ELOs into a progressive and sequential learning order. Initial assessment plans describe how an individual or collective unit/activity achieves standards to the prescribed learning level. (See figure 2-7.)

ADDIE Design and the OEE

In the design phase, the developer requires systematic means to scope the parameters of design for a learning domain and determine the objectives to satisfy a readiness gap in a functional area such as cyber. An outline design states a task or action to be learned, a conditional situation, and measures of performance to achieve a standard. Design also identifies resources to shape effective and efficient learning experiences. The Army's *Mission Command Strategy FY13-19* is an example of integrating a rigorous method to design and validate tasks and conditions for leader development learning objectives and strategic end states. The developer prepares a design profile to enter the development phase with the details of when, where, and how learning outcomes will be achieved.

Figure 2-7. Cyber gap vignette-Design (example)

INDIVIDUAL DESIGN REQUIREMENTS

2-25. Before the design or redesign of a course, the training and curriculum developer identify prerequisite student knowledge, skills, and attitudes to ensure that the training and education outcomes meet the needs of the target audience. Design must consider the target audience profile developed during analysis and tasks/topics from previous training or educational experiences. A critical aspect during this phase is consideration of the impact on changes in the strategic environment that affect tasks or actions.

2-26. Training and curriculum developers specify any unique faculty/instructor requirements for knowledge, skills, and behaviors required to teach a particular learning experience. In the design phase, tasks and/or topic lists from the analysis phase are translated into learning objectives. Learning objectives provide details used to determine mastery of content. The *learning objective*—

- States the learning contract among the students-learner, faculty, trainer, and/or responsible and accountable learning organization.
- Serves as the foundation for educational design.
- Provides the basis for instructional training method.
- Determines instructional content.
- Frames learning conditions.

- Identifies standards for measurement or assessment of learning.

2-27. There are two types of learning objectives in course or lesson design. The two types are terminal learning objective and enabling learning objective.

2-28. Terminal learning objectives (TLOs) are the major tasks and topics identified during analysis that are quantified in a task or action, condition, standard format. The TLO is the main objective of a learning experience and is the performance required of the individual, unit, or activity to demonstrate competency in the task or action. The TLO describes exactly what the student must be capable of performing under the stated OE conditions to the prescribed standard(s) on lesson completion. There is only one TLO per lesson regardless of the presentation method or media, and the description has one verb. The TLO may cover one critical task such as a skill or knowledge, or more than one critical task (CT). (See table 2-1 for elements and considerations in defining a learning objective.)

Table 2-1. Learning objective requirements

Learning Objectives
Learning Objective Elements. All learning objectives must include a task or action, condition, standard, level of learning, and domain.
Task/Action. An action statement specifies what a student should do as a result of the education. Use only one verb in any action statement. The verb selected for the action statement must be congruent with the level of complexity of the action described.
Condition. A condition statement describes the learning environment that includes what will be provided (a scenario, small group, etc.), what will be withheld (without references, closed-book, etc.), any time constraints, and issues that affect student learning. (For example, issues can be material, equipment, special conditions, references, the role the individual, unit, or activity.)
Standard. The standard statement provides the criteria used to measure how well an individual, unit, or activity masters the learning objective. It minimizes subjectivity in measuring student attainment of the identified skills. The standard should incorporate minor topics identified in the topic analysis.
Learning Level. Base the level of learning on the complexity of learning. The desired level of learning dictates the selection of the verb in the action statement and is reflected in the criteria used to assess student learning. Many educational institutions use Bloom's Taxonomy when selecting the cognitive level of learning. In addition, when the objective indicates assessment of the affective domain, the level must be the same level as the cognitive domain.
Domain. Three learning domains are cognitive, affective, and psychomotor. Educational institutions generally use cognitive and affective domains. Training situations can apply all three learning domains.

2-29. Enabling learning objectives (ELOs) are the fundamental subordinate tasks or actions required to achieve the TLO. ELOs are quantified in a task or action, condition, standard format. They are the supporting learning objectives identified in the task/topic analysis. ELOs must be learned or accomplished to standard in order to achieve the TLO. At least two ELOs support a TLO. Each TLO must be unique and

is not used as an ELO. The training and curriculum developer format all learning objectives according to the requirements that state a *task* whereas an educational curriculum objective states an *action*.

COLLECTIVE DESIGN REQUIREMENTS

2-30. Collective training prepares cohesive teams and units to accomplish their missions in the range of military operations and maintains a high state of readiness throughout the train/ready and available portions of the ARFORGEN cycle. It is delivered in units and institutions. Collective training requires interaction among organizations or individuals to perform tasks, actions, and activities that contribute to achieving mission-essential task proficiency. Collective training includes performing collective, individual, and topics (leader tasks) associated with each training objective, action, or activity. Use collective training design considerations listed on the Army Training Network (ATN).

2-31. Design collective training concurrently when determining system and TADSS training strategies and available capabilities. Events that support collective training enhance individual, leader, and unit or activity task performance proficiency and teamwork. These events may be conducted either in units or during resident training. Collective training events are the integral element of a combined arms training strategy (CATS) that prepares Soldiers, leaders, and teams to accomplish their missions in a known or contingent decisive action environment.

RESOURCE AND MILESTONE PLANNING

2-32. Validate resource requirements identified initially during analysis and verify requirements during each stage of the ADDIE process. Adjust for changes in requirements, availability, and constraints for equipment, facilities, funds, personnel, and time.

2-33. Resources are further identified when designing or revising the learning steps and/or activities. Training and curriculum developers notify responsible officials of resource shortfalls identified during the process and state the impact on mission accomplishment. As priorities of support are determined and used to refine design of learning outcomes, total training resource requirements or estimates eventually reside in the appropriate individual training plan (ITP), course administrative data (CAD), or program of instruction (POI) in the approved automated development system. The ADDIE process is a recurring way to maintain and adjust learning experiences and outcome expectations based on the resourcing decisions of responsible officials. Other actions include regular update of milestone plans for scheduling, additional requirements, or potential issues that affect a learning outcome.

Note. When the nature of a training experience allows the training-exercise planner to develop an opposing force (OPFOR) order of battle (OB), task organization, and equipment tier levels for a credible and robust threat in training, use of the HQDA TC 7-100.2 and TC 7-100.3 are ready-resources of unclassified threat data and tactics. For composites of actual weapon systems and other equipment capabilities, scoped for a training environment, see the Army Training Network website under “CTID Operational Environment Page” and “OPFOR & Hybrid Threat Doctrine.”

SECTION III - DEVELOPMENT

2-34. Development is the production phase of ADDIE. The training and education developer validates resources, and confirms if availability of a resource has changed. Given a change in resources, the training developer reenters the design phase to reconstruct the lesson or course plan to achieve desired outcomes.

2-35. Developers take approved design outputs and turn them into completed, approved, validated products including details required to implement the instruction, assess the students, and evaluate the program. Major aspects in development are to—

- Develop the lesson plan and advance sheet for educational venues. A training environment expresses learning outcomes in a training plan or forms such as an operations plan or order.
- Develop and refine the specific individual, unit, or activity performance or ability to confirm that the learning outcome is achieved.
- Develop an assessment plan that measures successful achievement of the task/action to the standard.
- Review and update required and available resources with which to conduct the learning experience.
- Revise the milestone plan based on current assessment of resources and training and/or education preparations. (See figure 2-8.)

ADDIE Development and the OEE

In the development phase, the developer uses approved design outputs and creates completed, approved, validated products including the details required to implement the instruction, assess the students, and evaluate the program.

In a cyber learning requirement, the OEE can assist in creating and integrating of educational materials and capabilities for effective Army learning. The Training Brain Operations Center (TBOC) can replicate a cyber threat environment by using the Network Effects Emulation System (NE2S). NE2S simulates a low-level cyber attack on specific computers without permanently affecting the computer or the network.

Figure 2-8. Cyber gap vignette-Development (example)

2-36. The trainer and/or instructor prepare to implement the approved products. The proponent command authority approves the final plan, lesson, course or learning experience for implementation. A development strategy includes identifying all materials that support the implementation of a learning product. Developers verify that available resources satisfy the conditions required for the skills proficiency in the selected OE conditions.

2-37. The Threat Manager or OE subject matter expert assists in the developer review and validation process for credible and robust operational environment conditions. Figure 2-9 describes the major activities of the development phase of the ADDIE process. OE consideration on resources may include but are not limited to:

- Common Framework of Scenarios (CFoS).
- Operational Environment Assessments (OEAs).
- *Decisive Action Training Environment (DATE)*
- Regional case studies, handbooks, and/or topic vignettes.
- Training circulars with training and educational information.
- Observations and lessons learned from live training and operational missions.
- Constructive, virtual, and gaming simulations.

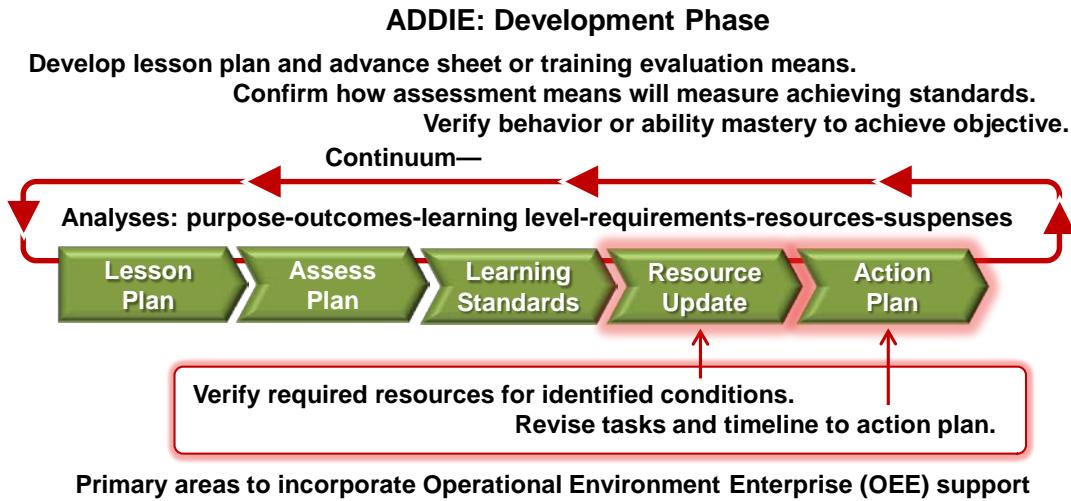


Figure 2-9. Development phase of ADDIE and OEE considerations

CONDITIONS, CIRCUMSTANCES, AND INFLUENCES

2-38. Verifying that all required resources are available is critical in this phase to ensure the required conditions are in place for the expected learning experience and outcome. The conditions affect how the task or action can be presented with the appropriate impact of situational circumstances and influences.

2-39. The term operational environment can be misunderstood as applicable to only the operational level of conflict, and that the operational variables used to describe an OE are applicable only at the operational or joint level. Both of those views are incorrect. The correct understanding of *operational* and *variables* means that an OE and its variables can relate to an operation at any level of tactical, operational, and strategic mission.

2-40. The training and curriculum developer determines the combination of variables to focus a particular learning event. Selected subvariables further define a learning environment and provide considerations for how conditions can be applied to a task or action. The integration can range from a student presentation on the operational variables of a current event to a practical exercise in a selected vignette to culminate the learning activity. Table 2-2 [at next page] is an example from TC 7-101 of the political variable and several subvariables to illustrate options available to integrate into a particular learning experience.

2-41. The eight operational variables and their associated subvariables describe the OE in terms that relate to specific situations as well as to threat capabilities. The variables are relevant to every echelon of command and every military mission within decisive action.

2-42. While individual variables do not dominate every environment, the variables are all present and require careful consideration and application to present the required credible and robust conditions. The operational variables produce a coherent profile of the conditions that can be applied to educational experiences, individual and collective training events, and small-unit or large-scale multilevel training exercises.

2-43. The training and curriculum developer analyze and verify all resource support required for the learning experience. Upon completion of this phase, all the conditions for the training and/or education are ready to be implemented. A discussion of the various OE products and services support available from the OE Enterprise is in chapter 3, “Operational Environment Enterprise (OEE) Support.”

Table 2-2. Political subvariable setting considerations (example)

Definition: Determines the type of government structure and associated behaviors encountered.		
Subvariable Setting	Setting Definition	Considerations and Additional Notes
Dictatorship/Authoritarian	A mode of government characterized by the existence of a single ruler or group who arrogate to themselves and monopolize power in the state, exercising it without restraint.	For live training requires robust domestic security apparatus, bureaucratic institutions and bloated role-player government structure (1.5 normal manning).
Theocracy	A government ruled by or subject to religious authority. A system of government in which God or a deity is held to be the civil ruler.	Can only occur in the first two categories of social religious diversity.
Representative Government	Characterized as a representative form of government—either democratic, republic or parliamentary in form—with elected representatives and executives. All politics are governed by will of people and government has limited, defined powers over the population.	Can be democratic, republic or parliamentary. Requires specific, prominent influencers, council members to be present in the scenario (in addition to the normal role-player government positions).
Anarchy	Absence of any form of political authority. Political disorder and confusion. Absence of any cohesive principle, such as a common standard or purpose.	Tribal and religious role-players present in scenario. Small percentage of disenfranchised or former government officials with little influence.

Subvariable Links: Economic: Illegal Economic Activity; Social: Education Level, Religious Diversity, Criminal Activity.

RESOURCE ANALYSIS CONSIDERATIONS

2-44. PMESII-PT is a memory aid for the eight operational variables that make up any OE. When listing the variables, it is therefore advisable to list them in the same order as in the memory aid. However, this sequence does not mean that one always addresses and analyzes the variables in a particular order. The order in which variables are considered may depend on several things, including whether or not the—

- Training or educational experience will use live, virtual, constructive, and or gaming enablers.
- Operational theme(s) selected for the training or educational experience requires specific conditions in one or more variables.
- Training and/or curriculum developer is analyzing an actual OE, modifying an actual OE, or creating a composite OE for training.
- The training unit, institution, or activity requests specific conditions in which to perform tasks/actions.

2-45. A key decision in developing the learning experience is to determine the type or types of training enablers to create the required fidelity in conditions. This decision may affect the order in which variables are considered, assessed, selected, and applied. For example, if the learning activity is to be conducted in a live training venue, many aspects of the physical environment variable are already set. When virtual, constructive, or gaming enablers are involved, the physical environment variable might be considered only after settings for other variables have been determined.

2-46. The type of training enablers to be used to reinforce the individual learning activity is critical during the development phase. Table 2-3 [at next page] provides a sample overview of the types of enablers and learning experiences that can be coordinated and applied to enact or reinforce learning.

Table 2-3. Training and education resource considerations (example)

Learning Resource and Sensory Experience Considerations		
Abstract	Learning Scale: Individual-Group	Learning Resource (Examples)
Sensory Experience in a Learning Environment	Verbal Symbols	Manuals, Handbooks, Special Texts, Reports
	Visual Symbols	Graphic Designs, Diagrams, Maps, Models
	Still Images and/or Audio Recording	Photograph, Illustration, Symbol, Social Media
	Videography and/or Television	Video, DVD, CD-ROM, Digital Camera, iPad
	Exhibits and/or Static Displays	Posters, Brochures, Advisories, Mockup, Kiosk
	Staff Rides and/or Field Trips	Case Study, Independent Study, Terrain Walk
	Demonstrations	Observation-Participation-Simulations
	Dramatized Experience	Virtual Vignette-Role Play-Interactive Gaming
	Individual Skills Experience	Military Skills Proficiency Training-Tutorial
	Small-scale Group Experience	Event-Lane-Course EX and AfterAction Review
Concrete	Large-scale Group Experience	Unit Exercise-Capstone Exercise-AAR

2-47. As the development phase of the ADDIE process concludes, the milestone plan incorporates any adjustments of the training and/or education action plan for execution. The continuous process of resource analysis and update reflects what resources are allocated to conduct rigorous training and/or education to the approved standard.

2-48. The training and curriculum developer, in conjunction with the Threat Manager or OE subject matter expert, confirm that the training plan and/or educational lesson are fully sufficient to present the required conditions in support of the task or action, and in order to achieve the standard. Without this continuum of analysis, the developer risks producing the learning experience that is less than the required robust learning environment and/or beyond capability of the target audience.

SECTION IV - IMPLEMENTATION

2-49. Implementation is the conduct of training and/or education in accordance with the approved action plan. Final preparations confirm that the trainer and/or instructor are prepared and certified to conduct the learning experience. Examples of an action plan for training can be but is not limited to a training plan, gunnery table, or exercise directive. Examples of action plan for educational learning can be but is not limited to a lesson plan, special project, or course program. Implementation includes specific means to collect trainer or instructor assessments to measure achievement of standards and learning outcomes.

2-50. The implementation phase is where the learning and training products, processes, and services are actually delivered to the learners. This total package is called a learning platform. A learning platform is an integrated set of services that provide the learners with information (content); activities; resources; and tools such as social learning media that support and enhance their quest to learn new skills and knowledge, and supports the learners' personal learning environment. If the learning platform is delivered in a different manner, such as e-learning or a Job Performance Aid, the platform must still be supported. The OE considerations in this phase are to determine if the equipment and supporting personnel are adequate to ensure the context of the OE is not a distraction or an ineffective enabler to the learning experience. This synthesis of the learning apparatus transitions into the final phase of the evaluation phase.

2-51. Specific assessment means are also ready for feedback to the trainer or educator from the training or education audience, as well as to the training and curriculum developer. Implementation of training and education products and outcomes include ongoing event, program, or course evaluation for continuous improvement. Assessment can include informal comments from a training or education audience, formal

questionnaires embedded in an event, and the various levels of after action review (AAR) during and after a learning event. (See figure 2-10.)

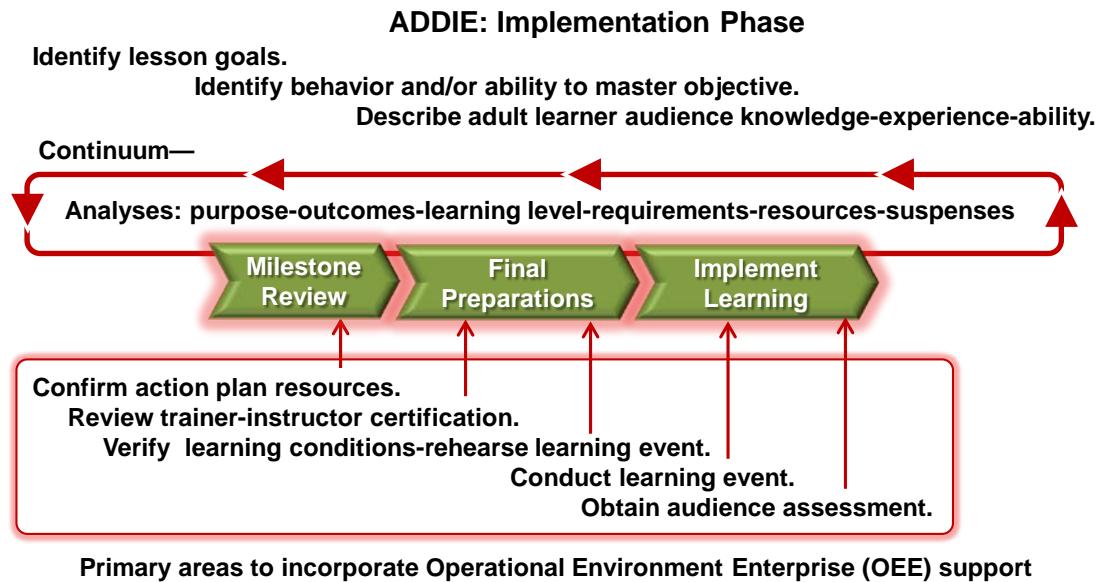


Figure 2-10. Implementation phase of ADDIE and OEE considerations

2-52. The developer obtains assessments and formative evaluation results during implementation. This is a check-on-development to control the quality and implementation of learning products and processes. Data on implementation of OE considerations is used by the developer to sustain or improve quality of conditions in the training implementation packet. Formative evaluations may also lead to new design and development requirements for the OE conditions in the training or education experience.

MANAGEMENT IMPLEMENTATION REQUIREMENTS

2-53. Qualified trainers, faculty, and/or instructors are critical to implementation success. They require appropriate faculty train-up support. They ensure students follow safety, security, and environmental requirements. Local policies and procedures contain additional guidance on implementation of training and education. Responsible and/or accountable leaders, in conjunction with developers, must ensure—

- Continuous internal assessment and formative evaluation.
- Quality control and supervision of the trainer-instructor qualification program.
- Satisfactory institutional services support to the learning experience.

2-54. When target audience individuals fail assessments after a designated number of assess, reinstruct, and reassess cycles established for a given learning experience, individuals with substandard performance are removed from the designated program. Proponents follow student dismissal policy and procedures as outlined in AR 350-1.

2-55. Ensure all required training and education resources are available for successful implementation. Manage personnel resources and tailor the organizational work force to support implementation. Coordinate implementation operations with all activities involved with the training and education program.

2-56. Manage facilities, equipment, and supplies. Maintain property accountability for assigned equipment. Ensure equipment and facilities remain in functional/operational conditions. Monitor facilities cleanliness

and ensure required repairs. Request materiel in accordance with local supply directives and policy. Ensure instructors receive support, materials, and equipment required for implementation. (See figure 2-11.)

ADDIE Implementation and the OEE

In the implementation phase, the developer verifies trainer-educator readiness, and resources for on-site and off-site learning venues. Conduct of the learning experience includes trainer-educator-leader and participant feedback. The OEE supports U.S. Army Command and General Staff Officer Course (CGSOC) curricula with case study effects of complex conditions that include cyber media exploitation as in the lesson plan for Mid-Grade Learning Continuum (MLC) for 2015 Common Core, M100: *Mission Command (MC) Lesson M117 Framing the Operational Environment*. Case study analysis includes actor use of information warfare (INFOWAR) with media manipulation and cyber effects in strategic, operational, and tactical levels of public opinion and conflict.

Figure 2-11. Cyber gap vignette—Implementation (example)

CORE IMPLEMENTATION REQUIREMENTS

2-57. Collective, individual, and self-development learning experiences share some common requirements and also have unique requirements for each type of learning experience. Core requirements are to:

- Comply with applicable laws and regulations.
- Comply with safety and environmental protection rules, regulations, laws, and course requirements.
- Ensure proper maintenance of required facilities, material, equipment, and systems.
- Obtain required reference materials and ensure currency of doctrine presented in instruction.
- Train faculty/instructors to implement and manage the training and/or education.
- Ensure implementation is based on approved analysis, design, and development outputs.
- Assess faculty/instructor delivery methods and conscious development of attributes.
- Continuously collect evaluation data per the evaluation plan developed in previous phases and provide appropriate feedback to the proponent.
- Maintain training and education records.

2-58. Collective training implementation may have learning experiences than range the cognitive, affective, and psychomotor domains. Characteristics of effective implementation include but are not limited to the following actions—

- Requires performance-oriented demonstration and/or learning to the standard.
- Sustains relevance in accordance with observations, insights, and lessons learned.
- Prepares units, teams, and individuals for missions and essential and/or critical tasks.
- Applies a crawl-walk-run approach to learning.
- Spans live, virtual, constructive, and gaming environments.
- Replicates conditions of a particular operational environment.

2-59. The Threat Manager or OE subject matter expert assists in the review and validation process for credible and robust operational environment conditions. Formative evaluation observations and insights are incorporated into the preparation for the summative evaluation in the ADDIE evaluation phase.

SECTION V - EVALUATION

2-60. Evaluation is a continuous process that starts during the analysis phase and continues throughout the life cycle of the ADDIE process as well as the life cycle of each learning product. Evaluation includes the quality control mechanism for training and education development and implementation. It is a systematic method to appraise quality, efficiency, and effectiveness of a program, process, procedure and/or product.

2-61. The evaluation phase provides a process for decision-makers to determine what to sustain or improve to meet established standards. The formative evaluations that occur during each phase of the ADDIE process support the formal review of a summative evaluation. The two forms of evaluation in the ADDIE review are formative and summative evaluation. (See figure 2-12.)

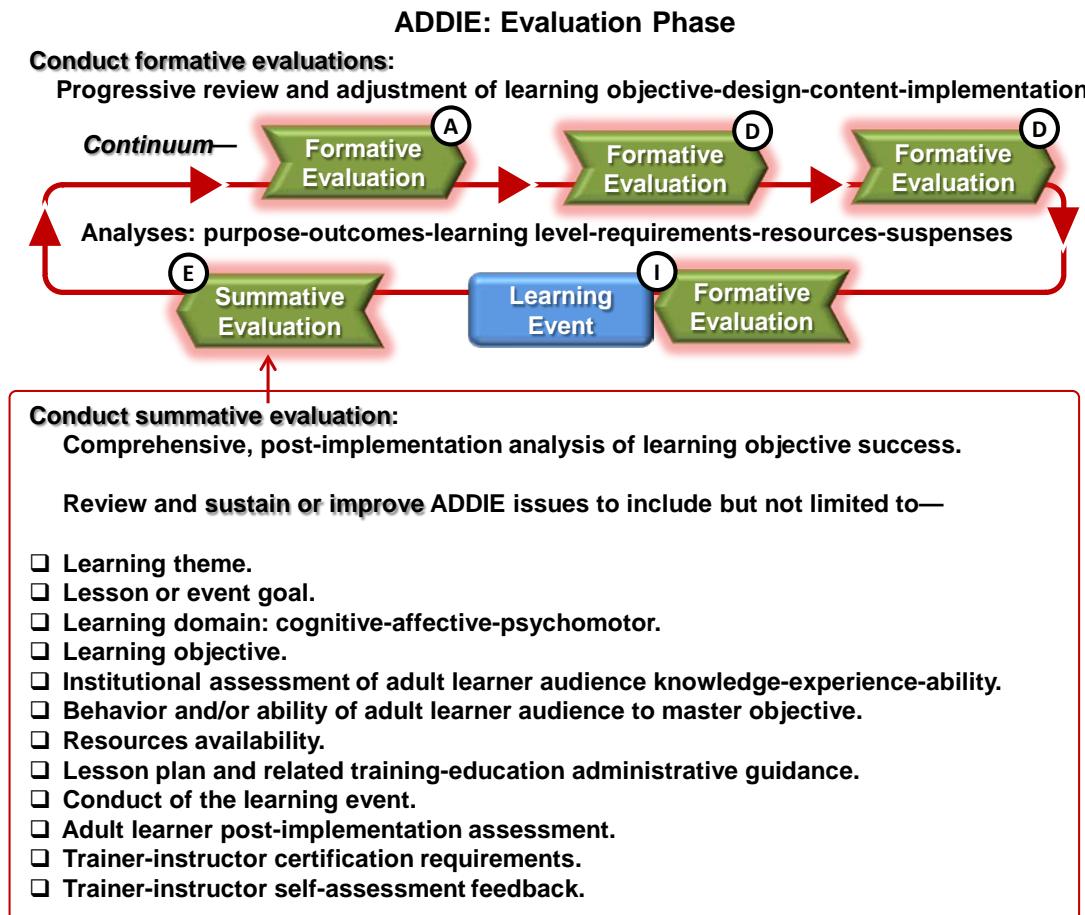


Figure 2.12. Evaluation phases of ADDIE and OEE considerations.

2-62. The Threat Manager or OE subject matter expert assists the developer in the review and validation process during informal and formal evaluation processes during this phase of ADDIE. An example of a formal process is the post instructional conference (PIC) at an educational institution. Sustainment and/or improvement of conditions that emerge from such a formal review are stated in academic guidance for subsequent learning experiences. As the ADDIE process is a continuum, the Threat Manager or OE subject matter expert attend sessions that cycle through analysis and lesson or course design review for curriculum update and verification of credible and robust operational environment conditions in support of tasks and actions. Similar formal venues in training environments review and revise learning experiences to confirm conditions to be sustained as well as emergent requirements to be integrated into future learning experiences. Concurrent actions assess and determine how to use limited resources in the most efficient manner to replicate realistic and robust conditions.

2-63. Evaluation incorporates the periodic reports from the Army's Quality Assurance (QA) Program. The QA evaluations provide unbiased regular assistance visits, and recommendations. All training and education institutions must conduct evaluations on a continual basis in accordance with policy for the Army's quality assurance program. Internal evaluations are conducted annually while designated headquarters evaluations are conducted every three years. Specific considerations for evaluation include but are not limited to:

- OE complexities resulting from variable interactions such as noncombatants, cultural and language challenges, media presence, and/or austere infrastructure.
- OE complexities of unified action partners such as governmental and non-governmental organizations, private sector groups, contractors, host-nation forces, security/police forces, and/or UN peacekeepers.
- Commensurate to their level of education, students understand various combinations of threats employing hybrid strategies (regular and irregular forces) applied against combined arms maneuver and stability operations.
- Doctrinal principles of the operational variables (PMESII-PT) and mission variables (METT-TC) are incorporated into the respective PoIs.
- Training aids, devices, simulators, and simulations (TADSS) replicate OE complexities (training role players, IED simulators, MILES, small arms) to a low-fidelity environment (low fidelity as defined by Army training directives).
- Training ranges and simulation facilities replicate various complexities of the OE (non-combatant targets on rifle range, terrain, key leader engagements, urban or rural sites).
- CoE/institution has identified a Threat Manager or appointed an OE subject matter expert to verify and validate OE content within TADSS and is involved in the ADDIE process.
- Conditions are modified to represent and integrate OE complexities commensurate to the OE learning spectrum as described in Chapter One.
- TRADOC-approved scenarios or approved derivatives are used for all learning activities that require a scenario.

2-64. Use formative evaluations continuously throughout the ADDIE process to check quality of effectiveness and efficiency and make in-progress improvements to learning and learning products. Formative evaluations provide sufficient data to decision makers to make sound, informed training and education decisions. Formative evaluation includes but is not limited to:

- Identify deficiencies/problems/issues rapidly during production (analysis, design, and development phases) to make corrections with minimal cost.
- Evaluate required outputs from each phase prior to expenditure of additional resources.
- Evaluate the effectiveness of the proponent/center/school's staff: managers, administrators, faculty/instructor, training and education developer, and/or any other staff with responsibilities during the ADDIE process, including managing/coordinating efforts with RC, contractors, and/or mobile training teams (MTTs).

2-65. Evaluate the quality of instruction, instructional materials, student learning and achievement, and the adequacy of the infrastructure in place to support both resident and non-resident instruction. Critical aspects for individual and collective training to meet its training objectives are that OE and OPFOR complexities set the right conditions within the task-condition-standard framework, and that they provide the appropriate stimulation that drives training unit actions to complete their training tasks and learn, and that such stimulations are relevant and realistic. Also important is the fair and accurate portrayal of potential conditions and a hybrid threat within the context of the established operational environment, while meeting unit training objectives and effecting desired leader development outcomes. An in-depth discussion of the OEE support to evaluation, accreditation, and validation of OE integration efforts may be found in chapter 3, "Operational Environment Enterprise (OEE) Support."

2-66. Experienced training managers and developers use strategies for overlapping processes, spiral development, and rapid prototyping to create quality courses and products while using less time and resources. Due to the ever changing nature of the strategic environment and unit deployments to various

operational areas of concern, a training developer may have to use this technique to rapidly incorporate the OE changes to a lesson or training support package. (See figure 2-13.)

ADDIE Evaluation and the OEE

In the evaluation phase, the developer reviews the formative and summative comments on the LD learning experiences, and sustains or improves the processes and products of ensure satisfactory task/action, conditions, and standards for Army readiness in complex operational environments. In a case for cyber readiness, the OEE in coordination with the World Class Cyber OPFOR (WCCO), assists in testing and evaluating U.S. Army unit cyber defenses and the ability to operate effectively during Combat Training Center (CTC) rotations. Results indicate if refinement of training conditions, resources, and leadership is required to prevent or mitigate effects of attacks by dedicated and robust cyber threats. Evaluation is a quality control mechanism for learning and learning product development, and exhibits a systematic and continuous method to appraise the quality, efficiency, and effectiveness of a program, process, procedure, or product.

Figure 2-13. Cyber gap vignette-Evaluation (example)

2-67. Training and curriculum developers overlap elements of analysis, design, and development to improve effectiveness and efficiencies in learning. Information gathered during task and topic development in the analysis phase overlaps learning objective development in the design phase. Completed and approved elements from the design phase may proceed to aspects of development prior to all elements being approved for integration. Implementation is a dynamic action of conduct and concurrent review. Evaluation overlaps every ADDIE phase. Formative evaluation must be conducted throughout the ADDIE process to ensure quality products and credible use of available resources. These are just examples when thinking in terms of non-linear efficiencies. Spiral development, sustainment, and improvement is an iterative continuum of updating and/or adjusting training and education experiences based on formative and summative evaluation data and other guidance from the leadership level accountable and responsible for the Army readiness.

Chapter 3

Operational Environment Enterprise Support

The Operational Environment Enterprise (OEE) builds, validates, creates, maintains and delivers OE context and complexity for leader development; training and professional education; experience, and concept and capabilities development.

OPERATIONAL ENVIRONMENT ENTERPRISE

3-1. An operational environment (OE) is a core condition of any mission. An OE is a subset of the strategic environment. The Operational Environment Enterprise (OEE) is the means by which OE products and services are developed, coordinated, integrated, verified, validated, accredited, and provided or made available to support the Army. The Army's Training and Doctrine Command (TRADOC) G-2, Deputy Chief of Staff for Intelligence, is the executive manager of the OEE. The TRADOC G-2 staff coordinates, administers, and conducts the recurring services and support functions of the OEE to the Army, and engages OE stakeholder communities through key Army decision forums.

3-2. At the OEE management level, the OEE regularly participates in key decision forums such as Quarterly Futures Reviews (QFR), Training Integration Forums (TIF), and Army Profession and Leader Development Forums. Proponents of these types of forums identify OE-related issues and engage the OEE to satisfy OE requirements related to leader development, training and education, and capabilities development. Effective collaboration between lead representatives, staff managers, and the OEE subject matter experts guide and support major objectives (MO) and supporting tasks toward Army readiness.

3-3. The OEE consists of Army stakeholders in the operational and institutional forces, internal and external capability providers, and OEE management that shape and govern enterprise activity. OEE stakeholders focus enterprise activity by defining their needs within the context of institutional or operational missions, and/or other organizational requirements. The OEE capability providers deliver products, services, and other support to meet OEE validated requirements. Enterprise-user engagements shape the definition of the needs and service, support, or product satisfaction.

3-4. The wide range of Army missions, combined with OE uncertainties and complexities, preclude responding to OE requirements effectively with any single or narrowly-scoped set of OE offerings. To OEE Army identifies how to most effectively support the prioritized major objectives and specified subordinate tasks and subtasks.

3-5. The OEE provides OE resources that support the Army in forums such as institutional learning, home station training (HST), combat training center (CTC) rotations, training by deployed units and activities, and other forces. These products, services, and support are integral to the institutional curriculum development process (ADDIE) and exercise design planning and execution. For example, training circular guidance on how to design exercises is codified in Army TC 7-101. The objective of exercise design is to structure and provision a training event that establishes the conditions to facilitate performance-oriented training on selected, directed, or mission essential training objectives. As a planning and design tool, TC 7-101 enhances an exercise planner's ability to produce an operational environment that achieves desired unit/activity objectives while fielding a challenging opposing force (OPFOR) consistent with hybrid threat training literature presented in the TC 7-100 series.

3-6. The OEE provides the developer with support to U.S. Army TRADOC and non-TRADOC CoEs, schools, and academies and other institutional domain venues. Support includes but is not limited to—

- Instructional design and scenario development OE data support for concrete training and educational experiences and related learning activities in support of individual and unit training and leader development.
- OE analysis expertise to ensure that the latest methodologies and techniques that facilitate enhanced understanding of the OE concept are integrated into the appropriate learning programs.
- Tailored OE data support to represent the diverse complexities of the OE in educational and training venues.
- Information of OE compliance by U.S. Army TRADOC and non-TRADOC organizations through Quality Assurance (QA) Program accreditation and assistance visits, and operational environment assistance team visits to the combat training centers (CTCs) and other Army organizations and activities.
- Insights on OEs and their integration into aspects of the Joint and Army lessons learned process. This includes the application of threat and red teaming perspectives and methodologies to update and validate environments and changing conditions in support of the Army and unified action partner communities.

OPERATIONAL ENVIRONMENT ENTERPRISE RESOURCES

3-7. The resources of the OEE comprise a comprehensive collection of information, services, and products that describe the complexities of current and future operational environments. Subject matter experts reside in the Army's commands, systems, educational programs, offices, centers, and other activities. The Army studies OE conditions continuously to ensure an accurate, robust, and relevant description of the variables in an operational environment. As executive manager of the OEE in support of the U.S. Army, TRADOC G-2 expertise and focus areas include but are not limited to the following resources.

TRADOC INTELLIGENCE SUPPORT ACTIVITY (TRISA)

3-8. TRISA consists of six subordinate directorates, office, university, and related activities: Threats Directorate; Wargaming, Experimentation, and Threat Emulation Directorate; Models and Simulations Operational Environment Directorate; Foreign Military Studies Office; University of Foreign Military and Cultural Studies; and Human Terrain System Directorate. Capabilities within TRISA are as follows:

Threats Directorate

3-9. The Threats Directorate studies, designs, applies, and certifies contemporary to mid-term operational environments (OEs) and threats (or opposing force [OPFOR]) in order to apply realistic and challenging conditions that drive all Army training; education and leader development; doctrine; and capabilities development. The Threats Directorate consists of two directorates: Complex Operational Environment and Threat Integration Directorate (CTID) and the Capabilities Development Scenario and Studies Directorate (CDSSD).

Complex Operational Environment and Threat Integration Directorate (CTID)

3-10. Serves as the Army lead for identifying, analyzing, documenting, and integrating the OE, threats, and opposing forces (OPFOR) in support of all Army leader development, training, and experience (LD). The CTID designs and sustains the Army's baseline OPFOR model in organizational structure and equipment as a composite of threat capabilities and limitations in regular and irregular forces for training, education, and leader development programs.

3-11. Researches, authors, and publishes threat and OPFOR literature in Army doctrine, administrative publications, handbooks, training support packages, educational and self-development support material, and related intelligence assessments and reports in order to describe foreign threats and terrorism threats that serve as OE training conditions for all Army training and leader development (AR 350-1).

3-12. Reviews, analyzes, and provides recommendations for the integration of the OE and its variables (political, military, economic, social, infrastructure, information, physical environment, and time)

(PMESII-PT), and subvariables into training, education, and leader development doctrine and practical experiences in LVCG domains.

CTID Operations

3-13. Serves as the approval authority for all OE conditions for scenarios used in training. Validates all data used in OPFOR training, simulation, and other activities, including training scenarios and OE. Researches, produces, and updates Army training, education, and leader development products. Examples include—

- U.S. Army field manual (FM) and Army Training Circular (TC) 7-100 series in support for the *Opposing Force Program* (AR 350-2).
- U.S. Army training, education, and leader development literature in OEs (ADRP 3-0).
- Terrorism tactics chapter contribution to U.S. Army Training Publication for *Antiterrorism* (ATP 3-37.2).
- Functional analysis appendix to U.S. Army Training Publication (ATP) 2-01.3 for *Intelligence Preparation of the Battlefield* (U) (ATP 2-01.3).
- U.S. Army Training Circular for *Hybrid Threat* (TC 7-100).
- U.S. Army Training Circular for *Opposing Force Tactics* (TC 7-100.2).
- U.S. Army Training Circular for *Irregular Opposing Forces* (TC 7-100.3).
- U.S. Army Training Circular for *Exercise Design* (TC 7-101).
- U.S. Army Training Circular for *Operational Environment and Army Learning* (TC 7-102).

3-14. Researches, produces, and updates Army OEE training, education, and leader development products to include topics such as—

- Operational environments and threats for near-term years and strategic environment for unified land operations (See figure 3-1.)
- Worldwide equipment guide (WEG) of capabilities for land, naval, and aviation systems.
- Improvised explosive device (IED) tactics, techniques, and procedures.
- Intelligence analytics processes.
- A military guide to threat terrorism in complex OEs.
- A training support package on threat terrorism in complex OEs.
- A handbook on threat terrorism and weapons of mass destruction threats.
- A handbook on threat kidnapping and hostage-taking in complex OEs.
- A handbook on threat terrorism tactics and techniques.

3-15. Publishes threat and OPFOR-related and OE unclassified information as strategic communications to the unified action communities through recurring professional literature to include a monthly—

- Newsletter on threats and OE-related topics.
- Combating terrorism poster as a monthly spotlight on current threats and available Army training, education, and leader development literature.
- Threats terrorism advisory as a monthly highlight on current threats and available Army training, education, and leader development literature.

Decisive Action Training Environment (DATE) and Cyber Attack

The *Decisive Action Training Environment* (DATE) provides the US Army training, education, and leader development communities with a detailed description of the conditions of five operational environments (OEs) in the Caucasus region, specifically the countries of Ariana, Atropia, Gorgas, Minaria, and Donovia. The DATE discusses OE conditions through the Political, Military, Economic, Social, Information, Infrastructure, Physical Environment, and Time (PMESII-PT) variables.

As US Army training, education, and leader development venues range from unit rotations at the Combat Training Centers (CTCs) and major exercises or events to individual home station training (HST) for units or activities, the DATE is the baseline document for all conditions and characteristics of its five OEs.

CYBER

For example, information warfare (INFOWAR) and cyber attack capabilities are a norm in DATE. Of the Caucasus countries, Ariana maintains the second most-robust computer attack capability through a large and capable cyber militia. While doubtful they could effectively penetrate major nation state-systems, the Arianians possess significant overmatch to any regional opponent except Donovia, due to their relatively large population of computer experts.

Ariana probably operates a massive open source intelligence (OSINT) program with government and government-affiliated operators who collect primarily via the Internet. The Arianian military continues to mobilize a large force of cyber collectors, most with computer warfare and English language skills, to both collect data on internal opposition to the Arianian government and Arianian adversaries. Ariana maintains a wide range of INFOWAR capabilities, which is likely to expand in the future. The Arianians have successfully dealt with a wide and dynamic cyber effort by internal opposition forces, which has given the country's cyber officials a great deal of real-world experience, and they have the support of Shia Internationalist Brigades operations for external operations. Ariana will retain a large measure of control over the nation's information environment for the foreseeable future.

Figure 3-1. OEE support and *Decisive Action Training Environment*

- 3-16. Integrates and coordinates current and mid-term threats and terrorism analyses in OEs into the Army lessons learned process in conjunction with the Army's Center for Army Lessons Learned (CALL).
- 3-17. Contributes threat updates to the Headquarters, Department of the Army G3/5/7 and Office of the Provost Marshal General, Army Antiterrorism Branch, *The Sentry*.
- 3-18. Contributes threat updates to the Headquarters, Department of the Army, Army Threat Integration Center (ARTIC).
- 3-19. Contributes threat updates to the TRADOC G34, Protection Division.

- 3-20. Integrates and coordinates current and mid-term threats and terrorism analyses into training packages that combine threat doctrine and tactics and techniques; video exploitation of current events and exercises; and modeling and simulations for resident, distributed, and mobile training, education, and leader development.
- 3-21. Collects, analyzes, and archives threat videos for use in Army training and products through the video exploitation (VEX) program.
- 3-22. Studies OEs and threat tactics, techniques, and procedures (TTP).
- 3-23. Maintains a CTID threats and terrorism data repository of historical and contemporary threats and enemy terrorism information and assessments.
- 3-24. Supports doctrinal application of OEs and OPFOR through the review, edit, development, and publication of designated training, education, and leader development literature.
- 3-25. Responds to requests for information from U.S. generating and operating forces on OE, threats, terrorism, and OPFOR issues.
- 3-26. Produces other OE and OPFOR products in accordance with U.S. Army priorities of effort.

Fusion Team

- 3-27. Produces and updates the U.S. Army's *Decisive Action Training Environment* (DATE), a prime source for operational environment (OE) conditions in complex OE and threat and/or hybrid threat opposing forces (OPFOR) in training, education, and leader development venues.
- 3-28. Produces Micro-Operational environment assessments (OEAs) for selected OEs in support of DATE training exercises.
- 3-29. Produces and updates Regionally Aligned Forces Training Environment (RAFTE) products (see figure 3-2) as supplements to DATE to train forces for a given OE, such as—

Regionally Aligned Force Training Environment (RAFTE) and the OEE

The *Army Posture Statement 2014* affirms the Army is regionally aligning forces in support of the geographic and functional combatant commands. The OEE supports this mission with training literature that augments the Army's decisive action training environment with special conditions and circumstances of a regionally aligned force training environment such as Africa. A RAFTE identifies the conditions that are unique to a selected operational environment (OE). This guidance enables training based on current conditions specific to an OE, and is a supplement to general OE conditions and OPFOR structure in Army training, professional education, and leader development events. An example of a complex OE for learning comprises mission-focused conditions, situational continuity in the context of larger and smaller training events, and a hybrid threat that can challenge Army forces with simple to sophisticated cyber capabilities.

Figure 3-2. OEE support and *Regionally Aligned Force Training Environment*

- 3-30. Produces Operational Environment Assessments (OEAs).
- 3-31. Produces Threat Assessments based on requests from Combatant Commands.
- 3-32. Edits and publishes a monthly OEE and threats-oriented newsletter.

3-33. Researches and publishes threat reports on current or potential operating environments (OEs) and threat TTP.

3-34. Provides research and analysis for designated high priority areas of interest on known or potential threats and persistent conflict OEs.

Research and Analysis Team

3-35. Produces and annually updates threat and OPFOR organizational structure and equipment capabilities.

3-36. Develops and maintains a repository of OE and threat and OPFOR information regarding organization, tactics, doctrine, and materiel for training, education, and leader development via the Joint Training Data Services (JTDS) database and the Army Training Network (ATN).

3-37. Provides subject matter experts representing specific intelligence/threat-related areas such as threat capabilities and tactics, geographic orientation, or policy areas such as crime, terrorism, and cyber attack.

3-38. Provides OE/OPFOR guidance and support on threat equipment data verification and surrogate systems data to support Army training, education, and leader development programs.

3-39. Researches and writes articles on current or potential OEs and threat tactics, techniques, and procedures (TTP).

3-40. Integrates and coordinates current and mid-term threats terrorism analyses into the Army lessons learned process in conjunction with the Center for Army Lessons Learned (CALL).

3-41. Develops baseline requirements for and conducts periodic review-updates for the OE/OPFOR pillar of resource requirements in support of combat training centers (CTCs) and home station training (HST).

Exercise and Training Support Team

3-42. Prescribes learning methodologies for developing current and predictive assessments of the OE to support leader development, training, and experience (LD) throughout the Army.

3-43. Prepares training support package and curricula aids to conduct OE training programs for cadre, scenario writers, observer controllers, course developers, and OPFOR.

3-44. Researches, produces, and updates Army training, education, and leader development products.

3-45. Researches, produces, and updates Army training, education, and leader development curricula support such as—

- U.S. Army Command and General Staff College. School of Advanced Leadership and Tactics. Mid-Grade Officer Learning Continuum (MLC) for 2015 Common Core. M100: Mission Command (MC). Lesson Plan for Lesson M117. *Framing the Operational Environment*. Training Vignette Support (Beslan).
- U.S. Army Basic Officer Leaders Course Common Core Lesson Plan: Explain the Operational Environment, Version 1.
- Basic Combat Training (BCT) Lesson Plan: Identify Combatant and Non-Combatant Personnel and Hybrid Threats, 301-BT301070 / Version 1.
- U.S. Army, Individual Task: 159-200-2026, Identify Combatant and Non-Combatant Personnel and Hybrid Threats.
- U.S. Army, Individual Task: 159-200-2025, Perform in an Operational Environment Effectively.

3-46. Conducts mobile training team (MTT) instruction to train and advise cadre on the threat and OPFOR.

3-47. Supports Quality Assurance (QA) accreditation programs in training and education for threat and OPFOR.

3-48. Maintains liaison functional area expertise with each of the combat training centers:

- National Training Center (NTC).
- Joint Readiness Training Center (JRTC).
- Joint Maneuver Readiness Center (JMRC).
- Mission Command Training Program (MCTP).

3-49. Executes OE training programs for Army cadre, scenario writers, observer controllers, course developers, and OPFOR.

3-50. Supports the development and implementation of exercise support packages in Army Centers of Excellence (CoE) curricula and training events.

3-51. Supports the Army institutional domain on OE and OPFOR integration through the review, edit, development, and publication of curricula and materiel.

Threats Capabilities Development Scenario and Studies Directorate (CDSSD)

3-52. Leads the development and validation of all capabilities development (CD) scenarios. Develops and certifies all OEs, threats, and associated threat capabilities used throughout TRADOC for all developmental work in CD studies, analyses, and experimentation.

3-53. The CDSSD—

- Designs, applies, and certifies the OE and threat for all TRADOC CD studies, analyses of alternatives, and other CD analyses and related CD modeling and simulation (M&S) applications in support of the Army CD mission. Variable replication is reviewed and validated.
- Validates threat system capabilities, characteristics, and applications, or surrogates for all CD M&S and related analytical work. Refines, recommends, and approves validated workarounds for M&S threat portrayal in support of Army CD M&S activities.
- Employs threat experts to represent adversary commanders in the development of TRADOC standard scenarios and scenarios underpinning CD studies, analyses of alternatives, and other CD analyses.
- Coordinates with HQDA, the service intelligence agencies, and DIA for review, input, and validation of threat and threat data products.

Operational Environment Laboratory-Models and Simulations (OE M&S) Directorate

3-54. The TRISA operational environment laboratory (OEL) conducts prototype development within the modeling and simulation (M&S) community and in support of Army learning. This includes constructive, gaming, decision support, and analytic products that incorporate OE-related behaviors associated with operational variables (PMESII-PT) variables and the human, social, cultural, and behavioral (HSCB) aspects of the OE. The life-cycle of these products include gap analysis, conceptualization, requirements development, material development and verification, validation and accreditation (VVA) efforts focused on delivery to current programs of record (PoR). To date, the OEL has prototyped and delivered to the Joint Land Component Constructive Training Capability (JLCCTC) PoR, the Hybrid Irregular Warfare Network-defeat Toolkit (HINT—an Attack the Network federation), and the First Person Cultural Trainer (FPCT) as a first person, game-based cultural competency trainer.

3-55. The OEL develops the Athena decision support tool prototype. This tool is undergoing multiple VVA efforts associated with decision support and analytical use cases world-wide and in support of customers across DA and DoD. This VVA, for all intents and purposes, is a service to the aforementioned customers in the form of study analyses and reports, the results of which provide for the continued refinement and development of the Athena tool. In addition, the OEL is evolving in a first of its kind effort to bring PMESII-PT and HSCB data to Mission Command. The OEL continues its partnership with Program manager OneSAF in co-development and integration of OE-related behaviors in that entity-based, constructive simulation. Products associated with the OneSAF co-development include a long list of

behaviors, Knowledge Acquisition and Knowledge Engineering documents, and product trouble reports (PTR). The PTRs are a result of the testing service the OEL provides to the PM OneSAF community. Behaviors thus developed for OneSAF are many, but include the IED Lifecycle and forensics and a current focus on cyber and subterranean representations.

3-56. The OneSAF simulation is the primary tool used in the OEL service support to the Army Capabilities Integration Center (ARCIC) experimentation efforts. Using the ARCIC sponsored Battle Lab Collaboration Simulation Environment (BLCSE), the OEL serves as the Threat/OPFOR Battle Lab for these experiments. The OEL also provides terrain integration and development support service to a wide variety of customer, all focused on getting the best two-dimension and three-dimension terrain representation for Army training scenario development. All these products and services support the Army Learning community as they ultimately find their way into home station, constructive, experimentation, exercise support and classroom environments.

Foreign Military Studies Office (FMSO)

3-57. The Foreign Military Studies Office provides unclassified, open source research for the OEE, especially focusing on understudied and unconsidered aspects of the operational environment from the foreign perspective. FMSO's OEE support products are provided to a broad scope of customers, via direct research papers and analytic input for OEE requestors, articles and monographs for TRADOC PME, requested SME support for events and projects, and requested pre-deployment briefings for regionally aligned forces and other units, and electronic journals of translated foreign OE media for general use throughout the OEE. FMSO's written and published products are posted on the open FMSO Web Site.

University of Foreign Military and Cultural Studies (UFMCS)

3-58. UFMCS provides curricula designed to create critical thinkers, and proceeds from a premise that before you point out to someone the errors of their thinking, you had better understand your own. The curriculum is, in essence, a professional experience for thinking to challenge students to examine prevailing thoughts and similar things they hold sacrosanct, and the ethnocentrism of their own thinking, overreliance on methods such as the military decisionmaking process (MDMP), a tendency to default to Western/Aristotelian logic, a lack of appreciation for the frames that subconsciously capture their thinking, a failure to avoid common cognitive biases, and predisposition to seek consensus while exhibiting classic symptoms of groupthink. How humans think, why they don't think as well as they could, how other cultures think differently, and how can we learn to think better are the core concepts of the UFMCS critical thinking curriculum of readings, contexts, and exercises.

3-59. UFMCS provides students with tools to help them view problems from alternative perspectives, challenge to their own biases, identify and examine the metaphors and analogies they use, and how to test them for appropriateness. UFMCS examines values and worldviews from other cultural perspectives with an intent to inculcate behaviors designed to make critical thinking a discipline and not a habit. The outcome of this process is a student with bundle of cognitive capabilities, at the heart of which is a better ability to apply one's normal thought processes and common sense to the circumstances of a given situation. UFMCS offers five programs of instruction: 18 week Red Team Leaders Course; 9 week Stop-Gap Red Team Leaders Course; 6 week Red Team Members Course; 2 week Critical Thinking for Red Team Practitioners Course; and 2-4 day Tailored programs. All UFMCS courses are available as MTTs. See the UFMCS Web Site.

Wargaming, Experimentation, Test, and Evaluation Directorate (WETED)

3-60. The Wargaming, Experimentation, Test, and Evaluation Directorate (WETED) represents the threat and the OE in experiments, wargame events, concept development venues, and test and evaluation events. The WETED—

- Selects, trains, educates, and manages a cadre of independent operational and tactical threat experts. Threat experts represent the OE and adversary to competitively challenge the Blue

Force in all TRADOC wargames, experiments, leader development venues, and concept formulation programs.

- Provides threat and OE assessments of U.S. capabilities, operational concepts, systems, and organization designs.
- Reviews, certifies, and documents threat representations, scenario assumptions, red players, and adequacy of models, simulations, and work-arounds in replicating the OE during the conduct of TRADOC-led wargames, studies, analytical venues, and experiments.
- Provides intelligence analysis and support for concept development, scenarios development, experimentation, wargames, and force development.
- Produces studies, analyses, and other documentation to support Army understanding of OE and threats for near-term, mid-term, and far-term timeframes.
- Coordinates with external intelligence agencies, departments, industry, and academia to adequately understand and replicate the OE and threats in training, concept, and requirements development.
- Provides oversight of threat support to test and evaluation across Threat Managers at CoE for Threat Test Support Package (TTSP) approval.
- Provides oversight of threat input to the Test and Evaluation Master Plan across threat managers at CoE proponent programs.
- Monitors all aspects of threat test coordination, planning, documentation, and approval of COE content in TTSP for all test and evaluation operational events requiring a validated threat. Participates in validation working groups for all threat simulators, simulations, and targets to be utilized in Army tests.
- Coordinates with the National Ground Intelligence Center, the other service intelligence production agencies, and DIA for threat science and technology intelligence and general military intelligence information for TTSP documentation and associated threat simulators, threat simulations, threat instrumentation data, and threat targets used in test and evaluation events.
- Provides threat test support for Army-led joint programs.
- Chairs threat working groups for test coordination of threat requirements and portrayal.
- Participates in Army Test and Evaluation Command (ATEC) Threat Accreditation Working Group for threat equipment used in tests which require approved threat portrayals.
- Serves as lead threat developer for TRADOC programs for development and portrayal which require Threat Computer Network Operations in Operational Tests.
- Participates in all test integrated product teams (IPTs) and working group IPTs in support of ATEC and program managers.
- Provides threat support for test and evaluation across the LVC applications.

Human Terrain System (HTS)

3-61. The Human Terrain System (HTS) is the Army's primary social science-based human domain research, analysis and training capability which fosters the Army culture interoperability with our unified action partners. HTS enables leaders to remain adaptive when shaping current and future complex strategic and operational environments. HTS facilitates a paradigm shift beyond a static PMESII-PT/ASCOPE/Western understanding in how commanders and staffs perceive, consider, and interact with local populations and UAP throughout the operations process and across the range of military operations.

3-62. HTS functions as an integrated system to facilitate relevant sociocultural understanding among commanders and staffs at the tactical, operational, and strategic levels to enable culturally astute decision-

making. HTS provides scalable direct support tailored to the needs of the client through embedded social science research and analysis, reachback secondary-source research and analysis, surveys of local populations, and access to academic and practitioner subject matter experts.

3-63. HTS core functions include:

- Recruit, assess, select, train, educate, and manage a cadre of multidisciplinary sociocultural experts.
- Conduct multi-disciplinary, holistic, and operationally relevant sociocultural research and analysis in order to enable culturally astute decision-making and enhance operational effectiveness. This research includes both operational support and human-subjects research.
- Support all three domains of the Army Leader Development Strategy (ALDS) (Operational, Institutional, Self-Development) through integration, sharing, and collaboration with units, schools and other organizations involved in leader development across the Joint Force.
- Assess the sociocultural effects of actions, inactions, and messages on specific populations for their operational impact.
- Develop and maintain a sociocultural knowledge base to preserve and share sociocultural institutional knowledge.
- Provide sociocultural support for concept development, scenario development, experimentation, exercises, modeling, simulations, and force development.
- Provide sociocultural training and education to the Joint Force.
- Develop and disseminate research products and contribute to doctrine to increase sociocultural understanding.
- Enforce adherence to internationally and locally accepted ethical standards and practices.

3-64. HTS Sociocultural Support to ADDIE. Culture of U.S. forces, our unified action partners, the local populace, and the interactions between and among all of these actors is a critical aspect of the complex, adaptive system that is the OE. HTS supports the trainer, curriculum developer, leader or staff responsible and accountable in each step of the ADDIE process.

3-65. HTS Support to Analysis. HTS supports units and organizations in the Analysis step of the ADDIE educational design process by assisting their staffs with the process of identifying and understanding the sociocultural aspects of their learning problems. In this step HTS collaborates with and provides recommendations regarding how to assess learners' preexisting levels of cultural knowledge and how sociocultural understanding contributes to their unit or institutions' learning outcomes. This step is critical because, although culture and the human domain are critical for success in all actions across the ROMO, the specific sociocultural knowledge, skills, and attitudes (KSAs) required vary significantly depending on the rank, responsibility, and future organizational mission of the students.

3-66. HTS Support to Design. HTS supports units and organizations in the Design step of the ADDIE educational design process by assisting with the identification and understanding of the sociocultural aspects of learning objectives (LOs), or enabling learning objectives (ELOs) that support established organizational LOs, as well as advise on particular aspects of the learning environment and method of instruction that would best facilitate achievement of the identified LOs.

3-67. HTS Support to Development. HTS supports the Development step of the ADDIE educational design process by developing sociocultural curriculum and curriculum support products. HTS develops sociocultural exercise scenario products, including regional-specific, general culture, or products to assist in leader self-awareness, depending on the required learning objectives. HTS provides train-the trainer support to increase the sociocultural aspects of the organization's educational capacity.

3-68. HTS Support to Implementation. HTS supports the Implementation step of the ADDIE educational design process by providing personnel to serve as guest instructors, coach-mentors, or role players as

required by the organization to achieve their identified learning objective. Guest instruction could be provided in person, by distance, or by blended learning formats.

3-69. HTS Support to Evaluation. HTS supports the evaluation step of the ADDIE educational design process by providing recommendations concerning rubrics, metrics, and processes by which the organization measures the sociocultural aspects of student learning. HTS uses Kirkpatrick's Four-Level model of training assessment consisting of measuring student reaction to the instruction, student learning, transfer of new knowledge (graduate on-the-job performance) and organizational results.

TRAINING BRAIN OPERATIONS CENTER (TBOC)

3-70. The Training Brain Operations Center replicates the complexities of the Operational Environment by leveraging real-world data, information, and knowledge and shapes it for more focused application in training, education, and leader development venues. See the TBOC Web Site:

- Supports realistic and relevant home station and institutional training by providing depth and complexity to scenario and exercise development.
- Helps commanders become better training managers and exercise designers through application of the Training Brain Repository.
- Develops Army Learning Model (ALM)-compliant OE visualizations and gaming products that are responsive to unit needs.

TBOC Simulations Support

3-71. TBOC Simulations creates and integrates virtual, constructive, and gaming replications of the OE. Video and simulations recreations support operational and institutional leader development needs as well as materiel and force development by providing a blended learning environment to efficiently communicate complex information.

3-72. TBOC simulations primary product is visualizations of the OE using Army Games for Training technology. By relying on gaming technology in lieu of traditional video production methodologies requiring actors, sets, and travel to shooting locations, TBOC can rapidly generate After Action Reviews and instructional support video content. Timely video production is greatly enhanced by TBOC access to OE data that is converted into a video replication.

3-73. TBOC also leverages gaming technology to provide a wide-range of customized products based on customer requests. TBOC has constructed several micro-simulations in a variety of gaming technologies tailored to specific uses and learning objectives. As the single largest creator of Army games for training content, TBOC produces gaming models, terrains, and software enhancements that improve training developers' ability to deliver effective instruction.

TBOC Exercise Support

3-74. The TBOC supports home station training and institutional learning events by replicating complex OEs. TBOC provides real-world operational and intelligence messages and reports as well as finished intelligence products that are integrated into the training exercise scenario. For field training exercises, this complex database is transformed to fit onto the home station terrain so that events that happen in the real-world environment happen at the right time and place in the local training area. For command post exercises (CPX) the database is kept in its original location, but transformed to fit the time period of the CPX. This enables the training unit or institutional course to build a common operational picture of their future environment and stress the staff's analytical capabilities against a realistic threat. The staff is essentially rehearsing their mission against a real-world threat environment on the terrain of their choice.

3-75. The replicated OE consists of social networks (threat, neutral, friendly, and unknown), real and current operational and intelligence messages and reports covering all the operational variables, and intelligence products such as threat assessments, spatial/temporal event analysis, and OPFOR/Role Player support packages. This gives the training audience access to the same amount and type of information available in theater which enables comprehensive analysis and targeting. This also reduces the exercise preparation burden on the training units and sets the conditions for an active start to an exercise.

TBOC Intelligence Directorate OE Application Products and Services

3-76. Training Brain Operations Center (TBOC) Intelligence Directorate assists training developers and planners integrate their respective programs of instruction into a specific OE. TBOC Intel products provide a mechanism to improve the training audience's ability to attain a deeper understanding of the operational environment. TBOC Intelligence Directorate provides the following products and services.

- Scenario development: assist developers and planners by recommending scenarios and storylines that support specific training objectives and represent the appropriate OE conditions.
- Scenario products: visualize the road to war and the historical sequence of events required to facilitate terminal and enabling learning objectives. Products include:
 - Area Overview.
 - Spatial and Temporal analysis of key events.
 - Analysis of social networks (friendly, neutral, threat).
 - OE-specific examples of enemy TTPs.
 - Role player instructions.
 - Information to support biometric systems and site exploitation.

TBOC Attack the Network (AtN) Training

3-77. TBOC conducts AtN training to improve the training audience's (TA) ability to integrate cross-functional staff skills, such as operations, intelligence, civil military operations, and information operations, into a unified effort. AtN training spans the operations process (plan-prepare-execute-assess) and demonstrates how integrating functions (design, IPB, and ISR synchronization) work together to support the targeting and assessment processes. The overarching training objective is to enable the TA to shape the operational environment for mission success by planning and conducting operations that support friendly networks, influence neutral networks, and neutralize threat networks. These three networks comprise the human domain. The TBOC also offers Advanced Network Analysis and Targeting (ANAT) Training, which enables the TA to rapidly identify ways to shape the human domain by engaging key network nodes. Depending on timing and resources available, the TBOC AtN team may be able to assist in tailoring AtN and ANAT training to meet specific requirements of individual COEs. Another example of coordinated AtN support is a Maneuver Center of Excellence (MCoE) Staff Attack the Network MTT that provides AtN training from BCT Staffs to Company CoIST. The training objective consists of mission planning to counter enemy IED and other networks with the end state of disrupting enemy network operations.

TBOC Training Brain Repository (TBR)

3-78. The TRADOC Training Brain Operations Center (TBOC) hosts the Training Brain Repository (TBR) accessible via NIPRnet directly at the TBR Web Site or through the Army Training Network (ATN) and SIPRnet (Common Access card (CAC) is required).

3-79. The Training Brain Repository (TBR) is the Army's "start point" within the Integrated Training Environment (ITE) for exercise design. It provides users the capability to create, store, access, modify and reuse exercise Warfighter Training Support Packages (WTSPs). The TBR is a software application that automates the Army exercise design process. The TBR currently provides a decisive action training environment in support of exercises. The TBR's user-focus capability allows unit trainers, exercise designers, intelligence staff, experimenters and curriculum developers to reduce the time required to develop an exercise while increasing the accuracy and realism of the OE.

3-80. TBR users can define and request their own set of training data regardless of their echelon, unit type, operational variables, or physical location. For example, a battalion S3 planning a command post exercise (CPX) at home station will be able to leverage the TBR to select the type of training, unit specifications, desired training audience, training environment, and output format in order to generate realistic training. The TBR guides the user through the exercise design process, including friendly forces and opposing forces units and tasks. Once fully implemented, it provides for: reusing tasks, Master Scenario Event Lists (MSEL), events, storylines, and higher headquarters' operational orders. The TBR supports use of unit tasks based upon a unit's specific Mission Essential Task List (METL), Joint Universal Tasks, and Army Tactical Tasks. The TBR will provide corresponding OPFOR tasks, searchable storylines, events and role

players, develop a timeline to reflect the MSEL, and develop the higher-unit operations order (OPORD) with Annexes A-D, as well as other training related documents. The end state enables Army commanders and staff to collaboratively develop and plan an exercise based upon realistic and evolving data from DATE, the Army Common Framework of Scenarios or a future OE.

INTELLIGENCE, SURVEILLANCE, RECONNAISSANCE INTEGRATION DIRECTORATE

3-81. Operational Environments have significant implications for Intelligence, Reconnaissance, and Surveillance (ISR). The OE drives how units organize, train, equip and man to accomplish the mission. Joint/Theater ISR is a critical function in helping commanders understand, visualize and engage with their area of operations (AO) and the problem sets within it.

3-82. ISR Integration is responsible for researching, developing and delivering key ISR elements of the Operational Environment, consisting of analyzing and refining OE-specific problem sets, and the application of theater capabilities and processes to dealing with them. See NIPRnet or SIPRnet Web Site.

3-83. OE-specific problem sets are analyzed for patterns of activity, network structure, and behavior. From those, indicators (consisting of signatures and observables) that can be exploited by theater ISR capabilities are described in detail.

3-84. Once Problem Sets have been developed and compared against collection capabilities, the ISR integration function produces a variety of products designed to support Army training and education including:

- Detailed description of OE-specific problem sets and ISR capabilities for collecting the range of Indicators associated with them
- Training support materials detailing Joint/Theater-specific ISR capabilities and processes. This includes assets, collection management, data and management architecture, and processing, exploitation and dissemination protocols.
- Detailed description of possible staff processes, TTPs, and battle drills for integrating Joint/Theater ISR to exploit those problem sets.

3-85. The ISR integration program also provides advice and assistance and training support to training and education by providing subject matter expertise on OE-specific application to problem sets. This support includes—

- Developing and delivering the Joint/Theater ISR context to the maneuver combat training centers. This is accomplished by establishing and portraying the Joint Force capabilities and processes in HICON roles; development and delivery of ISR staff integration training modules for use by CTCs to prepare rotational training units (RTU); and direct trainer/mentor support to RTUs on Joint/Theater ISR staff integration.
- Providing OE-specific assistance to the Army, including schools and centers of excellence; experimentation activities; and concept and capabilities development.
- Gathering and documenting ISR integration best practices, lessons learned and TTPs from trainer/mentor support at Combat Training Centers, deployed unit support and integrated support to Asymmetric Warfare Group (AWG) advise and assist missions.
- As required, providing OE-specific training and assistance to units, including:
 - Providing trainer/mentors to deployed units on staff integration of their OE-specific capabilities and processes
 - Providing training prior to deployment or during RAF alignment on OE-specific ISR capabilities, processes and their application
 - Assisting in the development and delivery of training materials for foreign military partners in support of COCOM and service component commands.

3-86. The ISR Integration OE support is not designed to develop or conduct individual or collective intelligence training, but rather to fully analyze and describe the ISR-relevant aspects of the Operational Environment, and provide tailored results of that analysis to units, training centers, and schools and centers to meet their own training and education requirements. While ISR integration provides training assistance as required, its key contribution lies in the detailed description of the OE in a form that can be quickly translated into training and education, or operationalized for aligned or deploying forces. (See figure 3-3.)

Network Integration Evaluations and the OEE

The NIE experiments and exercises investigate and guide cyber technology goals and objectives with Soldiers, Army leaders, science and technology experts, and testing communities to assess and determine practical training concepts and capabilities for the Army's newest mission command and communications suites. Updated Army doctrine guides tactics, techniques, and procedures (TTPs) for operational use. The OEE applies such advances from the Army Capabilities Integration Center on conditions that focus on developing adaptive leaders and organizations with modernized equipment, and revolutionize training, education, and leader development. The OEE support emphasizes being proficient in "how to fight" and sustain cyber systems in complex operational environments against hybrid threats and other challenging aspects of geographical and weather factors.

Figure 3-3. ARCIC and OEE support for cyber training requirement (example)

TRAINING AND OPERATIONAL ENVIRONMENT ASSESSMENTS DIRECTORATE

3-87. The OEE supports OE/OPFOR accreditation concept for institutional training and education. TRADOC G2 participates as a governance member of TRADOC Quality Assurance Office (QAO) accreditations for Army Centers of Excellence (CoE) and schools. As the OE governance evaluator, the TRADOC G2 reviews the integration of OE/threat complexities within programs of instruction (POI), lesson plans, classroom instruction and exercises. Using the results of these events, the TRADOC G2 evaluates the centers and schools ability to anticipate and generate OE conditions to challenge leader development, training, and education (LDTE) tasks in order to prepare leaders and Soldiers for future unified land operations. TRADOC G2 presents OE/OPFOR findings to the Army's CoE or school commandant as part of the overall QAO accreditation report.

3-88. Collective and individual training must ensure the conditions within the task-condition-standard framework to meet its training objectives in OE complexities. These conditions provide the appropriate stimulation that drive training unit actions to complete their training tasks and learning in stimulations that are relevant and realistic. Also important to the credibility of the OE/OPFOR Program is the perception that it accurately portrays potential conditions and an enemy within the context of the established operational environment, while meeting unit training objectives and effecting desired leader development outcomes.

3-89. Accreditation concept for collective training. Collective training accreditations occur at the CTCs, USAR Training Divisions, and ARNG collective training program(s) and other training organizations or programs using an OE for training purposes. The OEE assembles an interdisciplinary accreditation team of subject matter experts (SMEs) on OE/OPFOR, training, and leader development from throughout the Army and Joint community, and may include OPFOR representatives from other activities. The accreditation team travels to the training site(s), makes observations, prepares a written report with observations, discussions, and recommendations for the observed commander, either accrediting or not accrediting the observed OE variable portrayal, as well as the efficacy to which the replication helped the training unit to achieve training objectives and desired training outcomes. The OEE will also use observations and input

from training units as a feedback mechanism into the OE/OPFOR doctrinal, training, and training materiel development process. The use of OE complexities within collective training venues is accredited to ensure:

- The threat OPFOR is adequately trained and resourced to replicate the OE and other directed training.
- The OE is adequately defined and understood by leaders, trainers, evaluators, and scenario developers.
- Training venues are capable and resourced to replicate the complexity of interrelated OE variables.
- Training events are executed so that OE complexities drive leader development and unit training objectives.
- Mission command tasks and warfighting (WfF) systems are stimulated with complexities of the informational aspect of the OE.

3-90. OE/OPFOR accreditation concept for CTCs and Reserve Component training programs. The accreditation process may cover the entire period of an exercise, with potential team representation at the initial planning conference and subsequent events as necessary prior to the actual rotation. Reviewing the U.S. Army training objectives, and ongoing scenario development (including OE variable selection), as well as the organizational and operational structure of the OPFOR organization and other condition-setting elements (role players, replication of host nation security forces, lessons learned, prior accreditation reports) the accreditation team will provide advice and validate the scenario and its execution. The team will also look at OPFOR and observer/controller (O/C) training programs, leader development programs, and training seminars as appropriate. TRADOC G2 submits the accreditation report to the commanding general of the training program and the commander of Operations Group, and furnishes a copy to the Deputy Commanding General (DCG), Combined Arms Center-Training (CAC-T) for inclusion in a biennial training activity accreditation report.

3-91. OE/OPFOR validation concept for HST. In collaboration with FORSCOM, USAREUR (JMRC), and USARPAC, TRADOC G2 validates OE/OPFOR integration efforts and effectiveness within collective training events at home station sites (none-CTC hosted exercises). These validations are similar to the accreditation process, but are not accreditations due to the multi-facet variations in expected training objectives, anticipated outcomes, and limited resources that make it inconceivable for establishing common standards. TRADOC G2 will provide a written assessment of observations, discussions, and recommendations to training unit commanders, senior trainers, and the FORSCOM G3/5/7 and Deputy Commanding General, and furnish a copy to the Deputy Commanding General (DCG), Combined Arms Center-Training (CAC-T) as the program manager of HST.

OPERATIONAL ENVIRONMENT ENTERPRISE INITIATIVES

3-92. The OEE continues to incorporate operational environment conditions into the Army Learning Model (ALM) for the Soldier, leader, and civilian in ways that make OEE outputs available, accessible, tailored and useful to specific needs. The OEE architecture-supported tools and enablers are expanding in resource capabilities and accessibility on line. As training and curriculum developers collaborate with the OEE on the tools and enablers required for ALM, mutual objectives include—

- Identify OE considerations across the training development and training readiness cycle.
- Establish website links for easy access to OE/OEE data sources.
- Develop example OE/OEE vignettes as concise “how to” descriptions of what can be OE/OEE inputs during each phase of the analysis, design, development, implementation, and evaluation (ADDIE) process.
- Provide examples of job-aids, exercise design considerations, and task lists to leverage for staff and faculty curricula, training events, programs of instruction, and leader self-development.

3-93. In support of Army readiness in training, professional education, and leader development, several initiatives of the OEE are formative. As these initiatives attain an operational state, OEE capabilities and resources will be identified in updates to this training circular or announced in appropriate Army training education, and leader development forums and documents. A sample of OEE products and processes that

are evolving for support to the training and curriculum developer, and commander or leader responsible and accountable for Army training, education, and leader development include but are not limited to—

- Operational Environment Enterprise Portal.
- On Demand Red Team Overview Audio File.
- On Demand Red Team Tools Education Package.
- Red Team Additional Skill Identifier (ASI) Course in Modules.
- Training Brain Operations Center (TBOC) Immersive Environment.
- Decisive Action Training Environment (DATE) Training Support Packages and Products.

3-94. These venues emphasize critical and creative thinking, and improved situational awareness and understanding of complex OEs. Individual and collective learning by Soldiers and leaders nurtures operational adaptability and prudent risk-taking, and sustains the character and abilities for effective leadership to achieve Army standards. The OEE is a critical support capability to the Army.

3-95. This practical and intellectual enterprise for Army learning applies to the Soldier, Department of the Army Civilian (DAC), and Army leader as they conceive, plan, conduct, and assess-evaluate mission essential task and critical task successes that range from tactical to strategic operations in decisive action. The OEE is an integrated training environment (ITE) resource that optimizes technology-enabled presentations and other capabilities for individual and collective learning experiences, with robust, realistic, and relevant OE conditions.

Appendix A

OE Integration Job Aid for the Army Learning Model

The Army Learning Model (ALM) describes a continuum of learning focused on creating adaptive leaders across a career span that is learner-centric and enabled by technology. To assist the training developer, curriculum developer, commander, or Army leader to integrate OE considerations into training and education, a sample of statements for each ADDIE phase focus on operational environment conditions to support a task or action and standard of a learning objective. Statements and questions (see tables A-1 to A-5) indicate a number of considerations in an Army instructional system of analyze, design, develop, implement, and evaluate (ADDIE) learning. The ADDIE process supports the effective and efficient use of the ALM and Operational Environment Enterprise (OEE).

ANALYZE

Table A-1. OE considerations in the analysis phase (ADDIE)

OE Considerations in the ADDIE Process—Analysis	
	Review the current OE Assessments as authoritative documents for changes in the current operational environment.
	Identify changes in future operational environment assumptions in conjunction with current operational environment estimates for current and midterm periods.
	Identify specific OE trends that will impact task and action conditions.
	Identify common or regional implications of the target audience profile.
	Involve the Threat Manager or designated OE subject matter expert (SME) in the formative evaluation of the analysis phase of the ADDIE process.
	Involve the G-2, Threat Manager or designated OE SME as participant in the Critical Task Site Selection Board, (CTSSB).
	Identify OE conditions and trends that affect 21st Century Soldier Competency gaps or requirements, implications for cultural changes, and JIIM interactions.
	Identify OEE products and services required and SME within the OEE.
	Identify Gaps in OEE products and services that may require long-lead time for coordination and implementation of solutions.
	Update preliminary resource requirements and confirm suspenses to confirm allocation of resources.

A-1. Have you evaluated what part of the course or curricula that needs to be brought in line with ALM 2015?

A-2. What is in this course, lesson, or lesson module from the general leader attributes, competencies, knowledge, and skills as outlined in ALM?

- A-3. What tasks are currently trained in this module/lesson?
- A-4. What are the performance measures and standards for each task?
- A-5. How were the performance measures and standards determined/validated for each task?
- A-6. What does the feedback from the operational force say about the graduate's ability to perform the task?

DESIGN

Table A-2. OE considerations in the design phase (ADDIE)

OE Considerations in the ADDIE Process—Design	
	Identify specific OE factors that impact on task or action accomplishment to the standard.
	Identify OEE products such as opposing force (OPFOR) equipment, new or updated simulations-simulators, or computer-based instruction that provide required conditions.
	Involve the Threat Manager or designated OE SME in the formative evaluation of the design phase of the ADDIE process.
	Identify specific live role players and OE trainer enablers.
	Identify the apportionment of OPFOR role players (live, virtual, constructive, or gaming, [LVCG]) necessary to satisfy learning objectives.
	Mitigate OE factors that will degrade the performance of the task or action to standard.
	Identify OE factors that require a base level of prerequisite learner knowledge, skills, attributes, and attitudes.
	Update resource requirements and confirm allocated resources.

- A-7. Develop a management plan to design or redesign the course or curricula to meet ALM 2015.
- A-8. Assess and develop a plan to map where the OE conditions will be integrated within the respective modules/lessons. [This commonly referred to as course/module/lesson mapping.]

DEVELOP

- A-9. Write to user/customer for language skill at designated level of learning.
- A-10. Ensure that the learning outcomes are appropriate for current complex OE and incorporate aspects likely to occur in future OE conditions.
- A-11. Design concrete experiences with practical checks on learning that challenge students to be agile and adaptive in decisions and actions.
- A-12. Design a rubric to assess how well the learner is grasping the concept of assessing or evaluating the OE. Not necessarily a test.
- A-13. Develop a pilot version of the new or revised module/lesson for internal evaluation.
- A-14. Incorporate an applicable Quality Assurance Office (QAO) standard for OE integration.
- A-15. Do the trainers/instructors demonstrate the ability to use OE conditions effectively in preparation for training/instruction roles?
- A-16. Confirm information technology applications ready and accessible to target audience.

Table A-3. OE considerations of development phase (ADDIE)

OE Considerations in the ADDIE Process—Development	
	Establish trainer, and staff and faculty OE training such as formal and informal professional development sessions.
	Establish initial OE and systems training of OPFOR role players for (live, virtual, constructive and gaming simulations.
	Crosswalk operational variables and sub-variables with ADDIE Analysis and Design Phases to allocate appropriate OEE products and services support for the training and education.
	Identify prerequisite training or instruction required for trainers or educators prior to implementation of learning experience.
	Update resource requirements and confirm allocated resources.
	Involve the Threat Manager or designated OE SME in the formative evaluation of the development and validation of ADDIE process.
	Involve the Threat Manager or designated OE SME in confirmation that task or action, conditions, and standard are integrated and ready for implementation.
	Develop a prerequisite assessment with OE factors that require a validation of the instruction prior to implementation of the training.
	Synthesize all OE factors for consideration that provide a logical flow of the instruction.

IMPLEMENT

Table A-4. OE considerations in the implementation phase (ADDIE)

OE Considerations in the ADDIE Process—Implementation	
	Involve the Threat Manager or designated OE SME in the formative evaluation of the implementation phase of the ADDIE process.
	Observe how OEE products, and services support is used to provide the required OE rigor to conditions in support of a task or action and standard.
	Identify OEE products and services support to be sustained and/or improved in iterative learning experiences.

- A-17. Examine the new or revised module/lesson/training for internal evaluation as pilot version.
- A-18. Review feedback from pilot version learning experience and update module/lesson/training support package/program of instruction.
- A-19. Implement the learning experience.
- A-20. Collect formative evaluation data during the implemented learning experience.
- A-21. Prepare formative evaluation insights and findings for the summative evaluation for sustained and/or improved learning outcomes.
- A-22. Did unexpected limitations or constraints occur that affected the learning outcome?
- A-23. Did OEE products, and support services provide the required level of rigor to the task or action and standard?

EVALUATE

Table A-5. OE considerations for the evaluation phase (ADDIE)

OE Considerations in the ADDIE Process—Evaluation	
	Involve the Threat Manager or designated OE SME in the summative evaluation of the evaluation phase of the ADDIE process.
	Ensure student feedback and assessment instruments are considered in the formal evaluation for ADDIE process actions to sustain and/or improve.
	Ensure trainer, instructor, facilitator feedback and assessment instruments are considered in the formal evaluation for ADDIE process actions to sustain and/or improve.
	Evaluate the sufficiency of measures of effectiveness in evaluating the required OE learning level of target audience learning objective.
	Involve the Threat Manager or designated OE SME in preparations for the continuum of learning experiences for efficient and effective learning to standards.
	Solicits the help of Red Team personnel to assist in the evaluation of the training.
	Ensure Instructor/Facilitator reviews lesson materials to ensure currency and relevancy of OE discussion.
	Develop metrics to evaluate the desired OE learning level of the student performance concerning Branch Technical Competence.

A-24. Is the learning experience collaborative (group), individual interactive, or individual in nature?

A-25. Does a live, virtual, constructive, or gaming simulation exist that would more effectively reinforce the task or action, OE conditions, and standards?

A-26. Does the learning experience achieve the learning objectives?

A-27. How can robust OE conditions more effectively achieve the course/module/lesson learning outcome?

A-28. Does the summative evaluation account for the progressive formative evaluation observations and findings throughout the current ADDIE process?

A-29. What measures of effectiveness require revision to account for the level of fidelity in OE conditions?

Appendix B

Exercise Design Checklist

The Exercise Design Checklist (table B-1) is a sequential, summarized list of key exercise design tasks and associated events as described in phases 1 through 4 in chapter 2 of TC 7-101, *Exercise Design*. These items include exercise parameters; task and countertask development; PMESII-PT OE development; orders, plans, and instructions; and typical briefings, conferences, and control documents. The right-hand column contains page references in TC 7-101 for each step/task and action required. This checklist is not intended to be all-inclusive but rather to provide those critical tasks that must be accomplished within the design process.

Table B-1. Exercise design checklist

Design Phase	Step/Task	Action Required	Additional Notes	Pages
Phase 1: Initial Planning	Define exercise parameters.	Develop objectives based on the commander's training assessment and exercise director's initial guidance, troop list, unit training objectives (METL), requested conditions and resources. Product is defined exercise parameters and prioritized training objectives (METL).	Depending on the type and size of the exercise event, an initial planning conference may be required. This is normally the first meeting between the senior trainer, exercise director, and exercise planner.	2-2 and 2-3
	Determine exercise timeline.	Consider amount of time available, training objectives, training support personnel required, and available transportation and training facilities.	If time is limited, training objectives may have to be modified or eliminated in order to compensate for this shortfall.	2-3
	Determine whether exercise will be live, virtual, constructive, gaming, or a combination.	Refer to published exercise parameters to determine the resources to support live, virtual, constructive or gaming training event.	Consider aspects such as troops available, equipment status, and geographical space.	2-3 and 2-4
	Determine operational theme.	Refer to proposed training objectives, user requested conditions and the exercise director's initial guidance.	Depending on the time allotted and the experience of the training unit, it may be possible to train sequentially under two different themes.	2-4
	Determine whether using existing or composite OE.	Selection will depend on the type of mission, training resources and availability of OE data.	In almost all cases, training exercises will contain portions of the existing, modified, or composite OEs.	2-4

Design Phase	Step/Task	Action Required	Additional Notes	Pages
Phase 2: Task and Countertask Development	Determine OPFOR countertasks	Using the prioritized training objectives (METL), exercise parameters, and OPFOR UTL, select those OPFOR counter-tasks in order to counter and stress the training unit.	Refer to appendix B, OPFOR tactical task list for selection of appropriate tasks keeping in mind resources available and the desired fidelity of the exercise.	2-5 thru 2-7
	Develop OPFOR OB and task organization.	Using the selected OPFOR countertasks and FM 7-100.4, develop OPFOR OB and build appropriate task organization.	As discussed in chapter 2, this particular step will depend on whether there is an existing OE and associated OB. If so, this step may not be necessary or may occur in later phases.	2-7 thru 2-9
	Select OPFOR tier levels.	Using the selected OPFOR task-organized unit, select the appropriate WEG tier levels. Product is a fully developed OPFOR unit.	Same as above. Note that most OPFOR units should have a mix of various tier levels in order to provide more realistic training.	2-9 thru 2-11
Phase 3: PMESII-PT OE Development	Develop the operational variables.	Using operational variables, select appropriate subvariable settings listed in chapter 3 to produce the training conditions that support the training tasks required.	As is the case with developing the OPFOR, this step is also dependent on whether there is an existing OE. If this is an MRX for a real-world mission, the OE normally exists already. Whether using existing OE or composite, the exercise planner should go through all the variables and their subvariables to ensure the entire conditions are set for training objectives.	2-12 thru 2-16
		Chapter 2 provides example of one logical flow of the sequence for consideration of PMESII-PT variables.	This sequence is situation dependent, and the example may not work in all cases. Planners are not restricted to particular selection sequence.	2-16 thru 2-19
	Refine supporting METL tasks and associated task organization.	Using the OE-WFF analysis matrix depicted in chapter 2, examine whether or not the proposed supporting METL tasks and task organization are still accurate based on the defined OE.	Regardless of whether or not there is a real OE, planners should review the supporting tasks against the OE and WFF to ensure all tasks and task organization are accurate or need to be modified prior to STARTEX.	2-19 thru 2-21
	Determine common processes for the desired OE.	Preplanned events represent everyday activities common to all exercise OEs.	The level of fidelity of key events and the number of variables and subvariables replicated will be determined by factors such as the experience level of the training unit, the type of training exercise, and the number of role-players available.	2-21 and 2-22

Design Phase	Step/Task	Action Required	Additional Notes	Pages
Phase 3: PMESII-PT OE Development (Cont.)	Determine key events to highlight chosen training objectives.	With the guidance from the senior trainer and exercise director, select key events that are preprogrammed into the existing or developed OE that result in training value for the unit.	Indicators can build up to a key event, and a key event can result in 2nd-, 3rd, and even 4th-order effects.	2-22
Phase 4: Orders, Plans, and Instruction Development	Prepare and conduct final exercise planning conference.	Exercise planner presents an overview of the entire exercise to ensure details are complete. Senior trainer, EXCON, OPFOR commander, exercise director, and the training unit commander normally attend.	Results of this final planning conference lock in all exercise parameters, which include troop lists, training objectives, and the exercise OE. Includes the final review and the approval or disapproval of unit requests for equipment and troop list exceptions outside normal TOE.	2-23
	Prepare and conduct final exercise briefing.	Exercise planner provides the final pre-exercise information briefing to the exercise director and all pertinent staff. Normally conducted 30 days from the STARTEX.	The briefing covers all aspects of the exercise. No decisions are expected except to deconflict last-minute issues. Briefing includes the disposition of forces, chronology of key events, and C-, M-, and D-Day.	2-23 and 2-24
	Develop and issue higher unit warning orders, intell estimates and other exercise documents to the training unit.	Exercise director may direct exercise planner to develop and issue documents and plans to the unit. These may include warning orders, country studies and intelligence summaries.	These documents are issued in order to promote realism in training and provide information to the player unit prior to the exercise. This information allows training units to develop preparatory home station training prior to the actual exercise.	2-24
	Develop and issue higher unit OPLANS and orders to the training unit.	Exercise planner will develop higher unit OPLANS and orders to initiate the training unit's mission planning cycle and orders development process.	These documents provide key planning information. Combined with the above documents, they enable the unit to conduct its internal mission planning and orders production process.	2-24
	Develop and issue OPFOR orders.	Using the OPFOR counter-tasks, OB, and defined OE, the exercise planner develops and issues OPFOR orders.	These documents provide key planning information. They enable the OPFOR unit to conduct its internal mission planning and rehearsal process.	2-24 and 2-25
	Develop instructions for role-players.	Using the COE Actors and Role-Players Handbook, the exercise planner develops role-player instructions in order to support exercise realism, common processes, key events, and the selected OE subvariables. Provides specific acting and material guidance to role-players so that they accurately represent the desired training conditions.	Instructions are normally sent out NLT 30 days prior to STARTEX. The document describes the exercise OE and its relationship to role-player requirements, and includes scenario timeline and areas to be occupied (who, what, where, when, and duration) as well as personal and group profiles.	2-25 thru 2-27

Appendix B

Design Phase	Step/Task	Action Required	Additional Notes	Pages
Phase 4: Orders, Plans, and Instruction Development (Cont.)	Develop and issue the road to war to the training unit.	Using all products developed in phases 1 through 4, the exercise planner develops and issues the road to war.	This document is normally the last document produced in the exercise design sequence. It is a historical document that explains chronology of events that has produced current situation with deployment and disposition of the training unit and OPFOR units at STARTEX; identify C-Day, M-Day, and D-Day; and provide reasoning for the execution of training objectives and subtasks.	2-27

Appendix C

OPFOR Tactical Task List

The opposing forces (OPFOR) Tactical Task List is a listing of tactical tasks that are specific to the OPFOR. OPFOR tactical organizations and individuals perform these tasks as a threat norm rather than tasks that may appear similar in the *Army Universal Task List* (AUTL), Field Manual 7-15. OPFOR organizations and individuals perform tactical tasks in order to provide challenging conditions for the execution of mission essential and critical tasks by U.S. Army units and activities.

TACTICAL TASKS

C-1. The opposing force (OPFOR) Tactical Task List serves as the primary source for most tasks the OPFOR must perform. Reference this list first when conducting countertask analysis. Only if the OPFOR Tactical Task List does not contain an appropriate task is one selected for the OPFOR from the AUTL.

C-2. The details of each task are in TC 7-101, *Exercise Design*, Appendix B. Each task has—

- Task title.
- Definition (TC 7-100.2).
- Major subtasks.
- Measures to assess and/or evaluate successful conduct of the task.

C-3. Each tactical task is numbered in order to provide a standard reference and identification. The OPFOR tactical task list from TC 7-101, Appendix B is as follows:

- Task 1.0 Assault (p. B-1)
- Task 2.0 Raid (p. B-2)
- Task 3.0 Ambush (Annihilation) (p. B-3)
- Task 4.0 Reconnaissance Attack (p. B-4)
- Task 5.0 Reconnaissance (p. B-4)
- Task 6.0 Counterreconnaissance (CR) (p. B-5)
- Task 7.0 Defend from a Simple Battle Position (p. B-6)
- Task 8.0 Defend from a Complex Battle Position (p. B-6)
- Task 9.0 Actions on Contact (p. B-7)
- Task 10.0 Situational Breach (p. B-8)
- Task 11.0 Breaking Contact (p. B-9)
- Task 12.0 Fixing (p. B-10)
- Task 13.0 Tactical Movement (p. B-11)
- Task 14.0 Disruption (p. B-11)
- Task 15.0 Integrated Attack (p. B-12)
- Task 16.0 Dispersed Attack (p. B-13)

- Task 17.0 Fire and Maneuver (p. B-14)
- Task 18.0 All-Arms Air Defense (AAAD) (p. B-16)
- Task 19.0 Antilanding Actions (p. B-17)
- Task 20.0 Sophisticated Ambush (p. B-19)
- Task 21.0 Maneuver Defense (p. B-21)
- Task 22.0 Area Defense (p. B-22)
- Task 23.0 Information Warfare (p. B-23)
- Task 24.0 Insurgency (p. B-31)

Tactical Task EXAMPLE

Tactical Task 2.0 RAID (below) is an EXAMPLE of how each of the 24 tactical tasks for threat OPFOR is formatted in TC 7-101, *Exercise Design*. Each task includes a primary task, subtasks, and measures of effective performance.

TACTICAL TASK 2.0 RAID

A *raid* is an attack against a stationary target for the purposes of its capture or destruction that culminates in the withdrawal of the raiding detachment to safe territory. Raids can also be used to secure information and to confuse or deceive the enemy. The keys to the successful accomplishment of any are raid surprise, firepower, and violence. The raid ends with a planned withdrawal upon completion of the assigned mission. The subtasks for a raid are—

2.1 Infiltrate

- Conduct undetected movement through and/or into an area occupied by enemy forces to occupy a position of advantage.

2.2 Isolate

- Maneuver and deploy security element(s) to ensure additional enemy forces do not join the battle unexpectedly. (Security elements may become fixing elements.)
- Continue to provide early warning.
- Prevent the enemy from gaining further information.
- Prevent enemy maneuver.

2.3 Seize or Destroy

- Attack to destroy or seize personnel or equipment.

2.4 Exfiltrate

- Conduct undetected movement from areas under enemy control by stealth, deception, surprise, or clandestine means.

TACTICAL TASK 2.0 RAID		
No.	Scale	Measure
01	Yes/No	Unit infiltrates without detection.
02	Yes/No	Unit isolates enemy from assistance.
03	Time	To seize or destroy raid target.
04	Time	To extract/exfiltrate.
05	Percent	Of friendly forces available to continue mission.

Glossary

SECTION I – ACRONYMS AND ABBREVIATIONS

AAR	after action review
AD	air defense
AKO	Army Knowledge Online
ALDS	Army Leader Development Strategy
ALM	Army learning model
AO	area of operations
AOR	area of responsibility
AR	Army regulation
ARFOR	Army forces
ARTIC	Army Threat Integration Center
ATEC	Army Test and Evaluation Command
AtN	attack the network
ATN	Army Training Network
AUTL	Army Universal Task List
BCT	brigade combat team
C2	command and control
CAD	course administrative data
CALL	Center for Army Lessons Learned
CATS	combined arms training strategy
CD	capability development
CES	civilian education system
CFoS	common framework of scenarios
CG	commanding general
CPPCG	United Nations Convention on the Prevention and Punishment of the Crime of Genocide
CPX	command post exercise
CR	counterreconnaissance
CT	critical task
CTC	combat training center
DAC	Department of the Army Civilian
DATE	Decisive Action Training Environment
EXCON	exercise control
FM	field manual
FPCT	first person cultural trainer
HQDA	Headquarters, Department of the Army
HSCB	human, social, cultural and behavioral
HST	home station training
IED	improvised explosive device

INFOWAR	information warfare
IPB	intelligence preparation of the battlefield
ISR	intelligence, surveillance, and reconnaissance
ITP	individual training plan
IW	irregular warfare
JLCCTC	joint land component constructive training capability
JMRC	joint maneuver readiness center
JP	joint publication
JRTC	joint readiness training center
LD	leader development (training, education, and experience)
LVCG	live, virtual, constructive, and gaming [simulations]
M&S	models and simulations
MCTC	maneuver combat training center
MCTP	Mission Command Training Program
METL	mission essential task list
MILES	multiple integrated laser engagement system
MRX	mission rehearsal exercise
MSEL	master scenario events list
MTT	mobile training team
NE2S	network effects emulation system
OB	order of battle
O/C	observer/controller
OE	operational environment
OEA	operational environment assessment
OEE	operational environment enterprise
OneSAF	one semi-automated forces
OPFOR	opposing force
OPLAN	operation plan
OPORD	operation order
PIC	post instructional conference
PMESII-PT	political, military, economic, social, information, infrastructure, physical environment, and time (<i>see also PMESII-PT under terms</i>)
POI	program of instruction
QAO	quality assurance officie
RTU	rotational training unit
STARTEX	start of exercise
TBOC	training brain operations center
TBR	training brain repository
TC	training circular
TOE	table of organization and equipment
TRADOC	Training and Doctrine Command
TRISA	TRADOC G-2 Intelligence Support Activity

TTP	tactics, techniques, and procedures
TTSP	threat test support package
UTL	unit task list
VVA	verification, validation, and accreditation
WEG	Worldwide Equipment Guide
Wff	warfighting function
WTSP	warfighetr training support package

SECTION II – TERMS

accreditation

A disciplined approach to ensuring standardization across the Army in ensuring that training institutions meet accepted standards and are in accordance with higher headquarters guidance. It is the result of an evaluative process that certifies an institution meets the required percentage of TRADOC Accreditation standards with a focus on quality currency and relevant training and education that meets the needs of the Army. (AR 350-1). It is also the voluntary process of evaluating institutions or programs to guarantee acceptable levels of quality, including recognition by the U.S. Secretary of Education. (DODI 1400.25–V410)

after action review

A method of providing feedback to units by involving participants in the training diagnostic process in order to increase and reinforce learning. The After action review leader guides participants in identifying deficiencies and seeking solutions. (AR 350-1)

analysis

A phase in the ADDIE process required to address needs, outcomes, target audiences, missions, collective tasks, jobs, individual tasks, topics, and resources. (AR 350-1)

analytic decisionmaking

Analytic decisionmaking generates several alternative solutions, compares these solutions to a set of criteria, and selects the best course of action. It aims to produce the optimal solution by comparing options. It emphasizes analytic reasoning guided by experience, and commanders use it when time is available. (ADRP 6-0)

analysis, design, development, implementation and evaluation (ADDIE)

An Army instructional system design model used by training and education developers to build learning products. (AR 350-1)

Army

The U.S. Army includes the Regular Army, the National Guard of the United States, and the USAR; all persons appointed, enlisted, or inducted in the Army without specification of component; and all persons serving in the Army under call or conscription under any provision of law, including members of the National Guard of the States, Territories, and the District of Columbia, when in the service of the U.S. pursuant to call as provided by law. (AR 350-1)

Army leader

Anyone who by virtue of assumed role or assigned responsibility inspires and influences people to accomplish organizational goals. Army leaders motivate people both inside and outside the chain of command to pursue actions, focus thinking, and shape decisions for the greater good of the organization. (ADRP 6-22)

Army Leader Development Program (ALDP)

CG, TRADOC lead activity which executes Army leader development The ALDP is the Army program for managing HQDA-approved leader development initiatives. The ALDO is the sole

management process for program execution, approval, and incorporation of new initiatives, and recommendations for prioritization of resources. (DA Pam 350-58)

Army learning model (ALM)

ALM describes the framework, required capabilities, and on-going actions to implement a learner-centric, technology enabled, and career-long institutional learning model. (The Army Training Strategy)

Army-wide doctrinal and training literature

Publications that are DA numbered, indexed, and published. Products included are but not limited to: field manuals, training circulars, CATS, Army Training Network, Soldier training publications, non-equipment training manuals, DA pamphlets 350-9 and 350-58, and posters. (AR 350-1)

Army Universal Task List

The Army Universal Task List is a comprehensive listing of Army tactical-level tasks, missions, and operations. The Army Universal Task List complements CJCSM 3500.04F, the Universal Joint Task List, by providing tactical-level Army-specific tasks. (AR 350-1)

art of command

The creative and skillful exercise of authority through timely decisionmaking and leadership. (ADP 6-0)

assessment

The process for determining the current or projected training proficiency status of units, leaders and Soldiers and for identifying how to improve training proficiency, education/training products and the training process. It involves evaluating training and training support, providing feedback, conducting training assessments, conducting organizational assessments and taking corrective action to improve future training. (AR 350-1)

asynchronous learning environment

An asynchronous learning environment exists when communication between the instructor/facilitator and the student(s) is not simultaneous. (AR 351-9)

attribute

A quality, property or characteristic of an individual that moderates how well learning and performance occur. (Army Leader Development Strategy)

behavior

Specifies what a learner must do to satisfy a job performance requirement. Behavior may involve recall, manipulation, discrimination, problem-solving, performing a step-by-step procedure, or producing a product. (Army Leader Development Strategy)

behavioral statement

Statement of the behavior the learner must exhibit. If a condition or standard is needed to clarify the behavior, either or both should be included. (Army Leader Development Strategy)

blended learning

Online or technology-delivered instruction combined with face-to-face instruction. (The Army Training Strategy)

certification

A formal written confirmation by a proponent organization or certifying agency that an individual or team can perform assigned critical tasks to a prescribed standard. The team or individual must demonstrate its ability to perform the critical tasks to the prescribed standard before certification is issued. (AR 350-1) It is also the recognition or credential given to individuals who have met predetermined qualifications set by an agency of government, industry, or a profession. (DODI 1400.25-V410)

check on learning

A type of formative assessment of a learning objective. Examples may be a short quiz or a hands-on practical exercise, and could be written, verbal, or performed in a small group. (AR 350-1)

commander's intent

A clear and concise expression of the purpose of the operation and the desired military end state that supports mission command, provides focus to the staff, and helps subordinate and supporting commanders act to achieve the commander's desired results without further orders, even when the operation does not unfold as planned. (ADRP 6-0)

competency

An (observable) measurable pattern of knowledge, abilities, skills and other characteristics that individuals need in order to successfully perform their work. (DODI 1400.25, Volume 250)

condition statement

An element of a learning objective. The condition statement describes the learning environment and specifies the resources and limits under which a behavior is performed. Conditions often include a time constraint. (AR 350-1)

content validation

A type of formative evaluation and the process used to verify that the information in the lesson/course is technically accurate and integrates current and emerging doctrine. Optimally, content validations are conducted immediately after the components in each LSA are developed; therefore, content validations are performed incrementally. (AR 350-1)

decisive action

The continuous, simultaneous combinations of offensive, defensive, and stability or defense support of civil authorities tasks. (ADRP 3-0)

design

A phase in the ADDIE process used to transform analysis data into a blueprint for learning products. Design produces the details of when, where, and how outcomes must be met. Outputs from the design phase then serve as the framework for the development phase of the ADDIE process. (AR 350-1)

development

A phase in the ADDIE process used to convert the design into resident and non-resident learning products and components, such as lesson plans, student handouts, and media. (AR 350-1)

doctrine

Fundamental principles by which military forces or elements thereof guide their actions. Doctrine evolves from theory and concepts based on values, beliefs, historical perspective, experience, and research. (Army Leader Development Program, DA PAM 350-58)

education

A structured process to impart knowledge through teaching and learning to enable or enhance an individual's ability to perform in unknown situations. Instruction with increased knowledge, skill, and/or experience as the desired outcome for the student. This is in contrast to training, where a task or performance basis is used and specific conditions and standards are used to assess individual and unit proficiency. (AR 350-1) It is also developing an employee's general knowledge, capabilities, and character through exposure of learning theories, concepts, and information. Education is traditionally delivered by an accredited institution, and may relate to a current or future mission-related assignment. (DODI 1400.25-V410)

educational outcome

Educational outcomes are the cognitive knowledge, skills, and abilities attained as a result of involvement in a particular set of educational experiences. Educational outcomes must be observable and measurable and must indicate the type and depth of learning individuals are expected to know or be able to do. (AR 350-1)

enabling learning objective (ELO)

An ELO defines the skills, knowledge, or behaviors students must reach in order to successfully complete the TLO. ELOs allow the TLO to be broken down into smaller, more manageable objectives. An ELO supports the TLO. Each ELO measures an element of the TLO, and addresses skills or knowledge gaps. ELOs are identified when designing the lesson plan. ELOs are optional based on analysis of the TLO; however, when ELOs are used, there must be a minimum of two. (AR 350-1)

evaluation

A phase in the ADDIE process. Evaluation is the quality control mechanism for learning product development. It is a systematic and continuous method to appraise the quality, efficiency, and effectiveness of a program, process, procedure, or product. (AR 350-1)

experiential learning

Assumes learners bring experience and knowledge to the classroom. Learners construct knowledge by synthesizing their real-world experiences and their experiences in the classroom. Learners receive both formative and summative assessments from faculty and peers throughout the course. Experiential Learning creates learning that lasts by balancing both cognitive and affective domains. It allows learners to exercise critical reasoning and creative thinking by identifying problems and working collaboratively to develop possible solutions. (Army Leader Development Strategy)

feedback

Information provided to an individual or organization derived from observation, conferences, interviews, focus groups, surveys, and so forth, for use in improving performance and/or to elicit a desired performance. Feedback may be positive or negative in nature. Feedback provided in an education/training environment should enhance transfer of learning. (AR 350-1)

formative assessment

A range of formal and informal assessment procedures employed by instructor/facilitators during the learning process in order to modify teaching and learning activities to improve learner attainment. Formative assessments monitor progress toward goals within a course of study. It typically involves qualitative feedback (rather than scores) for both learner and instructor/facilitator that focus on the details of content and performance. (AR 350-1)

formative evaluation

The monitoring of a learning product as it proceeds through the ISD process to make sure the product achieves the desired outcome/objective. This is a check-on-development to control the quality of the learning products developed and their implementation. (AR 350-1)

functional competencies

Technical specialty areas of knowledge and skill. Abilities and other characteristics (non-technical, e.g., interpersonal skills) that are required by the majority of the positions in an occupational series or career program for the successful execution of critical tasks associated with the duties and responsibilities of positions. (AG-1 CP)

home station training

Where the majority of AA training takes place; where individual skills are honed and unit readiness developed. For the RC, it is any pre-mobilization training conducted at a unit's home station/location, local training area, regional collective training capability, or military installation other than a CTC. (AR 350-1)

hybrid threat

The diverse and dynamic combination of regular forces, irregular forces, terrorist forces, and/or criminal elements unified to achieve mutually benefitting effects. (ADRP 3-0)

implementation

A phase in the ADDIE process. The actual conduct of learning using the validated learning products created during the design and development phases. (AR 350-1)

institutional Army

Those organizations and activities that generate and sustain trained, ready, and available forces to meet the requirements of the National Military Strategy and support the geographic CCDRs in the performance of the full spectrum of military operations. Administer executive responsibilities in accordance with public law. (AR 350-1)

institutional training domain

The Army's institutional training and education system, which primarily includes training base centers and schools that provide initial training and subsequent professional military education for Soldiers,

military leaders, and DA civilians. The institutional domain includes initial military training, professional military education, Civilian Education System, and functional training for Soldiers and DA civilians. (AR 350-1)

instructional systems design (ISD)

The process of creating instructional experiences that make the acquisition of knowledge and skill more efficient, effective, and appealing. The Army ISD is based on the ADDIE model. (AR 350-1)

intuitive decisionmaking

Intuitive decisionmaking is reaching a conclusion through pattern recognition based on knowledge, judgment, experience, education, intelligence, boldness, perception, and character. (ADRP 6-0)

knowledge

Information required to perform a skill or supported task. Knowledge is the basic building block of all learning. (Army Leader Development Strategy)

leader development

The deliberate, continuous, sequential and progressive process, grounded in Army values that grows Soldiers and Civilians into competent and confident leaders capable of decisive action. Leader development is achieved through the life-long synthesis of the knowledge, skills, and experiences gained through the development of institutional, operational and self-development. (Army Leader Development Program, DA PAM 350-58/AR 350-1)

leadership

The process of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization. (ADP 6-22)

learning

Learning is a process of acquiring new, or modifying existing knowledge, behaviors, skills, values, or preferences and may involve synthesizing different types of information. Learning involves a change in the behavior of the learner as a result of experience. The behavior can be physical and overt, or it can be intellectual or attitudinal. (Army Leader Development Strategy)

learning objective

A three-part statement consisting of an action, condition, and standard. This statement clearly and concisely describes learner performance at the prescribed level of learning required to demonstrate competency in the instructional material. Learning objectives are derived from task/competency performance specifications. Objectives serve as the foundation for instructional design, provide the basis for instructional strategy decisions and criterion tests, establish clear and concise learner goals, and determine content. (The Army Training Strategy)

lifelong learning

Individual lifelong choice to actively and overtly pursue knowledge, the comprehension of ideas, and the expansion of depth in any area to progress beyond a known state of development and competency. (ADRP 6-22)

mission command

(Army) The exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations. (ADP 6-0)

mission command warfighting function

The related tasks and systems that develop and integrate those activities enabling a commander to balance the art of command and the science of control in order to integrate the other warfighting functions. (ADRP 6-0)

mission-essential task list

A composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. (ADRP 3-0)

PMESII-PT

A memory aid for the operational variables used to describe an operational environment: political, military, economic, social, information, infrastructure, physical environment, and time. (ADRP 3-0)

professional military education (PME)

PME is a progressive education system that prepares leaders for increased responsibilities and successful performance at the next higher level by developing the key knowledge, skills, and attributes they require to operate successfully at that level in any environment. PME is linked to promotions, future assignments, career management models, and applies to all officers. (AR 350-1)

quality assurance

Provides the commander assurance that the organization is efficiently and effectively meeting its mission requirements and ensures controls are in place to effect quality performance across the command. It employs quality control, assessment processes and statistical measurements to assess organizational effectiveness, efficiency and economy, to ensure all programs, products and processes have been fully integrated across the DOTMLPF, and to ensure organization/program/ process improvements. (AR 350-1)

self-development

A planned, continuous, lifelong process individual leaders use to enhance their competencies and potential for progressively more complex and higher-level assignments. (ADRP 6-22)

skill

A skill designates one's ability to perform a job-related activity, which contributes to the effective performance of a task performance step. There are two types of skills: physical and mental. (The Army Training Strategy)

standard statement

An element of a learning objective. The standard states the accepted proficiency level required to master a task or action. The standard establishes criteria for how well, completely, or accurately a process is performed or product produced. (The Army Training Strategy)

summative evaluation

A process that concerns final evaluation to ask if the project or program met its goals. Typically the summative evaluation concentrates on the program of instruction and the learning products. (AR 350-1)

terminal learning objective (TLO)

The TLO is the main objective of a lesson. The TLO describes in observable, measurable terms what the learner must do at the end of the lesson to demonstrate acceptable performance. A lesson has only one TLO. A TLO may be identical to the task/competency it covers. The learning level of the TLO is always equal to or at a higher level than the ELOs. (AR 350-1)

training

A structured process designed to increase the capability of individuals or units to perform specified tasks or skills in known situations. Process of providing for and making available to an employee, and placing or enrolling the employee in, a planned, prepared, and coordinated program, course, curriculum, subject, system, or routine of instruction or education, in scientific, professional, technical, mechanical, trade, clerical, fiscal, administrative, or other fields that will improve individual and organizational performance and assist in achieving the agency's mission and performance goals. (DoDI 1400.25-V410) progressively more complex and higher-level assignments. (ADRP 6-22)

validation

The process used to determine if new/revised courses and training products/materials accomplish their intended purpose efficiently and effectively. It is the process used to determine if training accomplishes its intended purpose. Validation and revising training are continuous actions in the teaching/revising process of training improvement. Validation is of the training products themselves, not the training site. (AR 350-1)

warfighting function

A group of tasks and systems (people, organizations, information, and processes) united by a common purpose that commanders use to accomplish missions and training objectives. (ADRP 3-0)

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TC 7-102
26 November 2014

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RAYMOND T. ODIERNO
General, United States Army
Chief of Staff

Official:



GERALD B. O'KEEFE
Administrative Assistant to the
Secretary of the Army
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