G&T Course Development Specifications

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Introduction

Purpose

The information provided in this document is a supplement to the Responder Training Development Center (RTDC). This document provides the tasks, processes, resources, and best practices included in the RTDC.

This document should be used as a guide for the development of the Department of Homeland Security (DHS) Preparedness Directorate's Office of Grants and Training (G&T) courses and for the review and approval of G&T-funded and non-G&T (sponsored (State/Federal) for acceptance into one of G&T's Course Catalogs.

G&T is committed to the belief that good training is accomplished through a standardized development and review process. The following G&T course development specifications provide guidance to G&T training partners to ensure that they identify, review, approve, fund, design, develop, implement, and evaluate training in a consistent manner.

Target Audience

The RTDC and this document are intended to help the Instructional Development Team and others develop courses using G&T specifications, resources, and instructional best practices. This document is also intended to help State/Federal-sponsored partners with the course review and approval process.

G&T Mission

The G&T Training Division (TD) makes training available to emergency responders across the United States and its six territories as part of an integrated program that also provides specialized equipment, exercises, technical assistance, and a Website that chronicles lessons learned. G&T remains the lead Federal agency for the development and delivery of Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) terrorism, catastrophic events, cyber/agriculture/food security, and citizen preparedness training to the State, local, urban, and tribal emergency responder communities. The training programs are tailored for a spectrum of emergency responders that includes the following professional disciplines:

- Law Enforcement
- Emergency Medical Services
- Emergency Management
- Fire Service
- Hazmat
- Public Works
- Government Administrative Professionals
- Public Safety Communications
- Health Care
- Public Health
- Private Sector

G&T draws upon a large number of resources to develop these training

programs and make them available. These resources include the National Domestic Preparedness Consortium (NDPC), the Rural Domestic Preparedness Consortium (RDPC), contract support, training doctrines, training tools leveraging technology, and an array of other training partners including national associations, institutions of higher education, and other government entities.

G&T training courses provide direct training assistance to Federal, State and local jurisdictions, the private sector, and approved international audiences to enhance their capability and preparedness to prevent, protect, respond to, and recover from acts of terrorism and catastrophic events. Training is based on the needs of the emergency responder communities and developed to nationally recognized regulations, standards, and guidelines produced by entities such as the Occupational Safety and Health Administration (OSHA) and National Fire Protection Association (NFPA). They are consistent and supportive with the National Response Plan (NRP), the National Incident Management System (NIMS), and the National Preparedness Goal. As a result, emergency responders are provided with a comprehensive curriculum for catastrophic events training and acts of terrorism.

State and local authorities have relied on established approaches (such as classroom instruction and practical exercises) for a long time to train First Responders. However, as the threat of domestic terrorism increases and the demands on Responders intensify, they need a more distributed and flexible training model to guide future efforts. The training model must be agile enough to address dynamic requirements quickly, and robust enough to reach a large, diverse, and growing audience. For these reasons, G&T is pursuing a Blended Learning approach to provide modular training content in a variety of media (including, but not limited to, classroom, Web-based, computer-based, and Video Teletraining) to keep pace with current needs. By balancing the technological advances in Distributed Learning with traditional training methods, Blended Learning will improve the ability to reach First Responders quickly with the latest training content.

What is "Blended Learning"?

Adopting a Blended Learning strategy involves tactically leading the curriculum from one environment to another, which will most benefit the learning experience. In order to be successful in this approach, consider the following:

Target Audience

- Will the target audience be able to conform to the chosen environments?
- Do the chosen environments support the way the target audience learns (learning styles)?
- Does the audience have the technology needed to view the chosen environments?

Delivery Media

- Is the technology needed to implement the chosen environments available?
- Are the chosen environments accessible?

- Are those environments supportable?

Instructional Strategies

- Do the instructional strategies support the chosen environments?
- Do the instructional strategies provide a meaningful learning experience?

Responder Training Development Center (RTDC)

The RTDC is a Website that provides a comprehensive and consistent process for the development, review, and approval of G&T and non-G&T-developed training courses. The RTDC also provides tools, best practices, and templates to assist in the development of a course.

The RTDC is intended for the following:

- **G&T-funded courses**: G&T training courses are those courses that are funded by G&T.
- **Non-G&T-sponsored courses**: Non-G&T-sponsored training courses are those courses that are either State-sponsored or Federal-sponsored, coordinated and approved by the State Administrative Agency (SAA), State/Territory Point of Contact (TPOC), or Federal Department/Agency Point of Contact (POC), and fall within the G&T mission scope to prepare State and local personnel to prevent, protect, respond to, and recover from catastrophic events or acts of terrorism.
- **Others**: Trainers, universities, and other members of the public that are interested in course development processes, tools, resources, and best practices to assist them in developing curriculum.

The RTDC is based on four stages called the CORE process. The CORE stages include the following:

- CONFIRM
- ORGANIZE
- REVIEW
- ENABLE

This document and the RTDC address the development of Web-based Training (WBT) and Instructor-Led Training (ILT).

WBT can be defined as on-demand electronic training that is stored on a server and accessed across a network. It is delivered over public and private computer networks and displayed by the learner through a Web browser. WBT presents live content in a structure that allows self-directed, self-paced instruction for any content. WBT is media-rich training, fully capable of evaluation, adaptation, remediation, and collaboration (e.g., white boards, online discussions, etc.) across various computer platforms. Typical media elements used in this environment include text, graphics, photographs, animations, video, and audio.

WBT provides consistent delivery of course content to extremely large audiences and is considered an excellent instructional medium for developing content that supports both cognitive and attitudinal objectives.

WBT accommodates learners with disabilities through the use of assistive technologies. It can be designed to support small group work and collaboration. Multi-purposed (i.e., for use as instruction and a resource), it can restrict access to authorized the Instructional Development Team, if necessary. WBT is updatable, engaging (if well designed), and offers learners the opportunity to remediate materials until proficient or “opt out” of content they have already mastered. WBTs are sometimes accessible from within Learning Management Systems (LMS). Within an LMS, content can be linked and learning can be tracked and “modularized” into small units of instruction that are suitable for assembly and reassembly into a variety of courses.

WBT is technology-dependent, requiring faster Internet connectivity and a slightly higher degree of computer literacy than basic PC knowledge. The interface is not ideal for extensive text and must be well designed to avoid skimming information rather than going in-depth.

Development requires specialized knowledge, software, and equipment. Depending upon the level of complexity, courseware development can require as much as 200 to 400 hours for every hour of finished product. The Instructional Development Team must consider that bandwidth limitations may restrict the use of high-end visuals and sound.

ILT is a traditional method of instruction that is comfortable for both learners and instructors. It provides social interaction with immediate feedback, can be used with various audience sizes, and supports the integration of a variety of media into instruction that tailors content to the group, or can be adjusted by the instructor while in progress. Learners are usually removed from the work environment so that they can focus on the content, free from distractions.

Live (Instructor-led) instruction, whether delivered inside or outside of the classroom, remains the cornerstone of any effective instructional program. This phase provides the steps as well as the best practices and recommendations for developing an ILT.

The PADDIE Model

The RTDC CORE stages align with the Planning, Analysis, Design, Development, Implementation, and Evaluation (PADDIE) model. The PADDIE model is an Instructional Systems Design (ISD) development model that breaks the process into phases to help guide the Instructional Development Team throughout the course development lifecycle.

The phases of PADDIE include:

- Phase 0: Planning
- Phase 1: Analysis
- Phase 2: Design
- Phase 3: Development
- Phase 4: Implementation
- Phase 5: Evaluation

Some the Instructional Development Team utilize Phase 0: Planning. This phase takes them through the preparation and project management tasks to help prepare them for the project.

The RTDC also includes a Sustainment phase, which includes the continuous review and maintenance of a course that has been implemented.

The PADDIE model shows the relationship of the CORE stages with the phases in the PADDIE process. The CONFIRM stage includes the Planning and Analysis phases, the ORGANIZE stage includes the Design and Development phases, the REVIEW stage includes the Implementation and Evaluation phases, and the ENABLE stage includes the Sustainment phase.

The Review Process

G&T believes the hallmark of good training is accomplished by enhancing performance through a standardized development and review process. All courses developed, institutionalized, and supported using G&T funds are subject to the rigorous review processes in which Federal, State, and local Subject Matter Experts (SMEs) examine the course content and materials for technical accuracy, instructional soundness, and compliance with accepted policies and procedures.

The purpose of the review process is for State and Federal-funded courses to get included in the G&T course catalog. Courses subject to this review are categorized as follows.

Type	Explanation	CORE Stage Review Process Begins
G&T Courses	Courses developed for or by institutions and organizations that the G&T directly funds.	CONFIRM Stage

Type	Explanation	CORE Stage Review Process Begins
State-sponsored Courses	Institutions or organizations other than Federal entities or G&T develop/deliver these courses, and the State Administrating Agency or State Training Point-of-Contact sponsors them.	New Course – CONFIRM Stage Existing Course – REVIEW Stage
Federal-sponsored Courses	Institutions funded by Federal entities other than G&T, which fall within the G&T mission scope, develop and/or deliver these courses.	REVIEW Stage

Note: Not all course types begin at the same CORE stage.

For questions regarding the review and approval process, e-mail FirstResponderTraining@dhs.gov.

G&T encourages states, territories, and urban areas to use Homeland Security Grant Program (HSGP) funds to enhance State and local emergency preparedness. Allowable training-related costs under G&T include the establishment, support, conduct, and attendance for training programs. The grant programs specifically identified within existing training academies, universities, or junior colleges include the following:

- State Homeland Security Program (SHSP)
- Urban Areas Security Initiative (UASI)
- Law Enforcement Terrorism Prevention Program (LETPP)
- Metropolitan Medical Response System (MMRS)
- Citizen Corps Program (CCP)
- Emergency Management Performance Grants (EMPG)

The Training Information System – Federal side tool ("Web forms Federal") is an electronic data management system designed to support G&T's ongoing efforts to develop common catalogs of approved, non-G&T-provided training. Applicable Web forms utilized throughout the review and approval process can be accessed on the RTDC.

CONFIRM Stage

Introduction

CONFIRM is the first stage in the RTDC. The CONFIRM stage includes the following phases of the PADDIE process:

- Phase 0: Planning
- Phase 1: Analysis

During the CONFIRM stage, the following documents/courseware are required to be reviewed and approved:

G&T

- After conducting Task 1 - Conduct Needs Assessment - Planning Stage, the Instructional Development Team should complete the Needs Assessment form and send it to the G&T Program Manager for review and approval to continue course development. The Needs Assessment form is in the RTDC Library.
- After completing the applicable Planning and Analysis Tasks, the Instructional Development Team should complete the Planning/Analysis form and send it to the G&T Program Manager for review and approval to continue course development. The Planning/Analysis form is in the RTDC Library.

Non-G&T

- The Instructional Development Team should complete the Development of State-sponsored Training Reporting Web form for review and approval to continue course development.

Planning Phase

Overview

Phase 0: Planning, enables the Instructional Development Team to begin preparing to design and develop a course. Planning includes determining the instructional needs and concepts, determining management and evaluation strategies, and estimating resource requirements and constraints. Planning activities are defined before developing new or revising existing instruction.

"*Begin with the end in mind*" – Stephen Covey

The following phases and steps provide a process for changing behavior.

Note: Planning is an iterative process that helps to manage a project's time, resources, and budget. The Instructional Development Team should revisit and revise the Planning phase documentation accordingly throughout the Planning, Analysis, Design, Development, Implementation, and Evaluation (PADDIE) processes.

Tasks

The major tasks in the Planning phase include:

1.	**Needs Assessment**
2.	**Review and Approval**
3.	**Define Project Scope**
4.	**Determine Resources**
5.	**Create Project Schedule**
6.	**Determine Budget**

Task 1: Needs Assessment

Explanation

A needs assessment is the process of determining if there is a need to improve performance and, if so, in what area and to what extent. Conducting a thorough needs assessment is critical to the development of successful instruction.

A good needs assessment helps establish:

- The existence of a need for instruction
- The type of instruction needed to solve the problem

Once the necessary information is collected and analyzed, the Instructional Development Team can develop potential solutions for addressing the problem.

The purpose of a needs assessment is to ensure that the stated problem or identified deficiency can be solved with instruction and, if so, determine what instruction is needed. Instruction will only solve performance deficiencies that occur when a learner lacks the knowledge, skills, abilities, and/or attitudes required to successfully perform the task.

If the identified performance deficiency is not a result of a lack of knowledge, skills, abilities, or attitudes, instruction cannot solve the deficiency, and thus there is no need to proceed further with the course.

Note: Before determining that a new course needs to be developed, the Instructional Development Team must consult with available organizational sources to see if an agency or Commercial Off-the-Shelf (COTS) course already exists that can be used.

Process

Identify Instructional Goals

During this step, the Instructional Development Team determines what learners must be able to do or know when they complete the course. The Instructional Development Team determines how well the identified goals are being achieved by interviewing and observing people who are experts in performing the skills or having managers describe the type of knowledge or skill they wish their staff to possess.

A by-product of a thorough needs assessment is an instructional goal(s). An instructional goal is a broad, yet clear, statement of what is to be achieved from the learning solution (GhostWriters, 1999). However, a complete goal statement has four components:

1. The learners
2. What the learners will be able to do in the learning context
3. The learning context in which the skills will be applied
4. The tools that will be available to the learners in the learning context (Dick, Carey, & Carey, 2005, p. 25)

Instructional goals describe broad, encompassing learning outcomes. For example, the goal of this course is to do the following:

- Increase knowledge and understanding about...
- Foster communication about and resolution of....
- Establish consensus on...
- Familiarize first responders with...
- Introduce the concepts and theories related to...
- Expose participants to the principles of...

Determine How Well the Identified Goals are Already Being Achieved

The Instructional Development Team determines how well the identified goals are being achieved by observing people on the job, conducting assessments, or evaluating job performance. A combination of these techniques provides the most reliable estimate of the current level of performance of instructional goals.

Identify Optimals

Optimal performance refers to the performance or knowledge that is desired, or "what should be". The emphasis is on what individuals need to know and the skills, abilities or attitudes they are required to have in order to perform a job or successfully complete instruction. Determining optimal performance requires a careful analysis of all associated sources.

Identify Actuals

Actual performance is the "way it is". The term refers to what the individuals currently know, can do, and believe about the job or subject.

Identify Performance Gaps

In order to determine if there are performance (or learning) gaps, the Instructional Development Team compares the desired (optimal) performance to the actual performance. A learning gap exists any time there is a difference between what the learner knows or is able to do and what the learner should know or be able to do. This gap is called an instructional deficiency or need, and represents the potential content that needs to be taught.

Prioritize Gaps According to Agreed-upon Criteria

Weighing agreed-upon criteria, the Instructional Development Team prioritizes the gaps between “what is” and “what should be” for each identified goal.

Determine Which Gaps are Instructional Needs and Which are Most Appropriate for Design and Development of Instruction

The Instructional Development Team needs to be careful not to assume that a poor performance in learning tasks implies a need to correct or revise training. For example, a high rate of learner absenteeism or insufficient equipment for learners to perform their job may be the cause of poor work performance.

Existence of a deficiency does not necessarily indicate that an instructional

need exists or that instruction is automatically the best solution to the problem. The problem may relate to motivation, design, lack of performance feedback, or other organizational barriers.

Resource:

Please see the Needs Assessment form in the Responder Training Development Center (RTDC) library.

Resource:

Training Gap Identification Worksheet - Sample

This worksheet is used when an individual, group, or organization determines that a lack of knowledge or proficiency requires formal training (i.e., documented training with defined learning objectives and training materials), but no such training currently exists. It defines basic information about the training gap that is sufficient to determine the scope and priority of the assignment, and to decide which training function should receive the tasking.

Date:	
Training Gap Title:	
1.	Describe the lack of knowledge or proficiency the Instructional Development Team wants to correct.
2.	What basic topics does the Instructional Development Team think should be covered in the training?
3.	How are employees learning the knowledge, skills, or tasks right now?
4.	Would the Instructional Development Team categorize this as familiarization/awareness/overview training, basic procedures/skills training, advanced procedures/skills training, or specific task training?

5.	Who does the Instructional Development Team think will need this training?
6.	Where does the Instructional Development Team think this training is needed (at what installations and work locations)?
7.	Names/Offices of Contributors to this Worksheet:

Task 2: Review and Approval

Explanation

If the Instructional Development Team is funded by the Office of Grants and Training (G&T-funded) and developing a new course, the Planning and Analysis form in the RTDC Library must be completed and provided to the G&T Program Manager for review and approval in order to continue development of the new course.

Task 3: Define the Project Scope

Explanation

Defining the project scope involves identifying the project objectives and the work that must be performed to complete a project. The purpose of determining the scope is to clearly define the deliverables or end product of a project, as well as to focus the project team's goals. A successful project scope should define and interweave project objectives, deliverables, milestones, technical requirements, limitations, and review cycles.

Note: The needs assessment task in the Analysis phase must be completed prior to the Planning phase.

Process

The following steps should be considered when defining the project scope:

Step	Definition
Develop project objectives	Defined in the scope as what the end product is, when the project must be completed, and how much the product will cost.
Identify deliverables	Defined in the scope as expected outcomes over the lifecycle of a project including specifications or requirements, design and development plans, prototype completions, and evaluation plans or reports. These deliverables often include time, quantity, and cost information.
Determine milestones	Defined in the scope as major segments of work to be completed throughout the project. Milestones are often built upon the completed deliverables, and serve as control points to measure project progression.
Identify technical requirements	Defined in the scope as the capability or capacity required to successfully operate a technical product. Technical requirements for instructional projects will often be related to hardware and software needs for computer systems. The Web-based Training (WBT) section of the G&T Style Guide available on the RTDC defines the technical requirements.
Identify limitations	Defined in the scope as the work that will not be included in a project. Limitations help the Instructional Development Team stay focused on the commitments made to the customer in the scope of the project.
Determine review cycles	Defined in the scope as meeting with the requesting organization to ensure expectations for each project milestone are being met. Review cycles help to ensure

	that the end product will be acceptable when delivered.

Resource

Please see the Planning/Analysis form in the RTDC Library.

Task 4: Determine Resources

Explanation

Determining the type and quality of resources required to design, develop, operate, and support instruction is a vital step in all instructional development projects. Early resource identification helps to ensure that resources are available when needed. To plan the project accurately, the Instructional Development Team must identify resources as early as possible, including the following:

- **Personnel**: The Instructional Development Team, Subject Matter Experts (SMEs), trainers, learners
- **Instructional Support**: Instruction, support, network access, computers, software, television
- **Facility**: Classrooms, laboratory, test stations
- **Funds**: Equipment, facilities, and personnel cost
- **Timing**: Instruction development, personnel, instruction equipment

Not all resources will be available upon request. To combat potential impact to the project, the Instructional Development Team need to plan ahead for alternate resources for personnel, equipment, facilities, funds, and timing, and be prepared to borrow equipment, change the course schedule or the delivery method, or modify the location as needed.

Process

The Instructional Development Team should consider the following when determining resources:

Resources	Considerations
Personnel	When determining personnel requirements: • Identify the need for specialists • Define the roles of the specialists • Identify the knowledge and capabilities of specialists (SMEs) • Plan adequate education for instructors (Train the Trainer)
Equipment	Consider the following when selecting equipment: • Suitability or appropriateness • Usability • Internet access, firewalls, ATV (audio, television, and video) equipment • Reliability

Resources	Considerations
	• Availability • Maintainability • Cost In addition, consider the following: • What type(s) of equipment may be needed (instruction, support, or test)? • How many personal computers will be needed (laptops, tablets, Personal Digital Assistants (PDAs), etc.)? (Student to device ratio) • Will instruction equipment need to be developed? If so, when will it be needed? • Does equipment need to transfer classified information? • What software products are required? • Will network access be required for wired or wireless? • How will the equipment be used in the course? • What quantities will be required? • What is the lead time for equipment and parts? • Will secure storage equipment be required to store classified documents? • If faced with an equipment constraint, can alternative equipment be used?
Facilities	Consider what special facilities will be needed to develop and deliver instruction. When requesting a facility to accommodate course, consider the following: • What type of facilities will be required? • What is the size of the required facility? • What are the power requirements? • Who is involved with the facility design reviews? • Will secure storage be required for storing classified material? • Will it be necessary to have secure classrooms? • Are facilities available? • If facilities are available, will they require modification? • Are there special environmental requirements? • Are maintenance and repair facilities available?

Resources	Considerations
	Are they adequate? • What do the facilities cost? • What is the best value?
Funds (Fixed & Recurring)	When determining funding, consider the following questions: • What are the funding requirements to obtain the equipment, facilities, and personnel needed to develop and operate the instruction? • What are the lifecycle costs to operate and maintain the instruction? • If instruction is on-site, what are the temporary duty costs or per diem? • What are the recurring costs associated with the instruction?

Resource

Please see the Planning/Analysis form in the RTDC Library.

Task 5: Create Project Schedule

Explanation

After establishing the scope elements of a project, the Instructional Development Team must tie these elements to project priorities and build a project schedule. A project schedule is used to identify dependencies, sequencing, and timing of activities.

Specifically, a project schedule details the start and end dates, the sequence, and the duration of each activity and task in a project. However, developing a successful project schedule requires that the Instructional Development Team understand the relationship among, and set priorities for, schedule, scope, and budget.

Process

The Instructional Development Team should consider the steps listed below when developing a project schedule.

1. When building a project schedule:

- Understand the project constraints and objectives
- Identify milestones
- Identify dependencies
- Estimate durations and resources
- Create a timeline of project activities, tasks, and milestones; base the project timeline and outcomes on real project dates and expectations
- Organize the details
- Analyze the schedule to ensure the project is realistic
- Review the schedule end date, critical activities, critical high-risk tasks, resource allocations, and dependencies and fixed dates

2. When it is determined that the plan details are realistic, identify the following key project roles:

- Requesting organization
- Instructional Development Team
- Project team

Resource

Please see the Planning/Analysis form in the RTDC Library.

Resource:

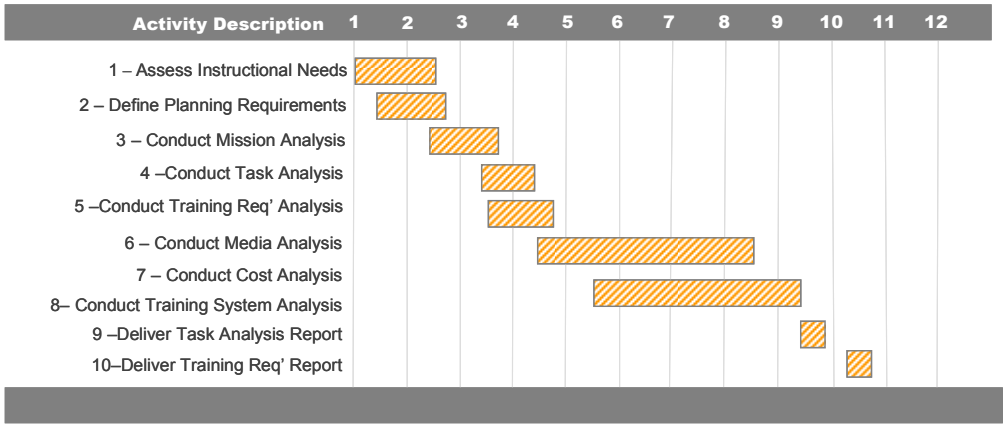
Gantt Chart

There are various tools and methods for tracking project schedules. Below is an example of a Gantt chart. The Instructional Development Team prefers

different tools and methods for tracking project schedules.

Gantt charts are used to visually indicate resources and activities within a designated timeframe that are assigned to a project. The charts are used to compare planned completion dates with actual performance. These charts consist of a list of tasks to be accomplished and the time allowed for each. The Gantt chart illustrates tasks that are sequential and tasks that overlap. A Gantt chart contains the following:

- Horizontal time scale that depicts the length of the project
- Vertical axis with a list of all activities involved in the project
- Horizontal bar indicating duration of each activity



Note: This Gantt Chart example does not show dependencies among activities.

Resource: Milestone Resources

Please consider using your time/task plan from your grant and the CORE (Confirm, Organize, Review, Enable) checklist in the RTDC Library and the Timeframe and Procedures for Onsite Review below.

Timeframe and Procedures for Onsite Reviews

Note: These timeframes are estimates and will vary with the complexity of the course and other factors.

Timeframe	Activities
4 months prior to 1st pilot	Receive materials for ISD (Instructional Systems Design) review to include: 1. CDD (POI) (Course Design Document, Plan of Instruction) ▪ Course and module goals and objectives ▪ Methodology ▪ Course logistics (supplies and equipment)

	▪ Instructor requirements ▪ Course schedule (agenda) ▪ Course structure 2. Need for the course 3. Instructor qualifications 4. Test questions 5. Pilot plan 6. Appropriate TCL(s) (Target Capabilities List) for the course 7. Evaluation plan
Within 14 days working after receipt of ISD materials	CRA will: ▪ Review material for conformance with ADDIE Model ▪ Check Terminal Learning Objectives (TLOs) and Enabling Learning Objectives (ELOs) for proper use of Bloom's Taxonomy ▪ Cross-check test questions with module objectives ▪ Submit report to developer and G&T with findings of review
	Developer and G&T will send Course Review Contractor (CRA) the dates of all pilots
3 weeks prior to 2nd pilot	▪ Developer will send 5-10 copies of course materials to CRA ▪ CRA will send course materials and comment sheets to selected SMEs and National Domestic Preparedness Consortium (NDPC) members for review
Within 5 working days post 2nd pilot	▪ SMEs will submit comments/recommendations to CRA
Within 5 working days of receipt of SME comments	▪ CRA will compile all comments and send to developer and G&T ▪ A National Incident Management System (NIMS) SME will review for compliancy
	▪ Developer will make appropriate changes to the course materials based on the comments with G&T approval ▪ Developer will complete the comment sheets with indicating changes that have/have not been made and why
6 weeks prior to onsite review	▪ Developer, in conjunction with G&T, will provide dates and location for the review to CRA ▪ CRA will work with the developer in making

	logistical arrangements
4 weeks prior to onsite review	Developer sends CRA: ▪ Revised course material (5-10 print copies and 1 electronic) ▪ Completed comment sheets ▪ Instructor bios ▪ Marketing plan ▪ Sustainability plan ▪ List of developer onsite review attendees with contact information ▪ List of Federal partners or trade members that will attend the review with contract information
7 working days prior to review	▪ SMEs and NDPC review revised materials and developer comments ▪ Submit any additional changes or comments regarding the course revisions to CRA
Day of onsite review	▪ Developer will discuss their course in detail ▪ Developer will provide information about the pilots ▪ Developer will provide participant evaluation information ▪ Developer will provide lessons learned ▪ CRA facilitator will guide discussion based on the SME and NDPC comments and issues ▪ CRA facilitator will guide discussions on marketing, sustainability, and partnerships
Within 5 working days	CRA will submit a final report of the onsite review to G&T and developer

Task 6: Determine Budget

Explanation

Determining the amount of money available, allocating the money, and considering time constraints are critical to successful course development.

Process

The Instructional Development Team should consider the following questions when determining budget:

- What is the total budget for the project?
- What time constraints are associated with the budget?
- How does the Instructional Development Team plan to allocate the money for this project?
- What are the funding requirements and funding sources to obtain the equipment, facilities, and personnel needed to develop and operate the instruction?
- What are the lifecycle costs and funding sources to operate and maintain the instruction?
- What are the recurring costs and funding sources associated with the instruction?

Resource

Please see the Planning/Analysis form in the RTDC Library.

Analysis Phase

Overview

Phase 1: Analysis is broad and contains many diverse activities and tasks that are extremely important to the overall success of the learning solution. Through a proper analysis, the "Who, What, Where, Why, and By Whom" is determined. Instructional courses and systems that are developed, updated, or revised based on objective, valid, and reliable analyses are more likely to provide accurate, appropriate, and effective instruction for the target population.

During the Analysis phase, the Instructional Development Team conducts various types of analyses (e.g., target audience, content, task, learning, and media).

The Instructional Development Team should carefully review project requirements to ensure that they conduct the appropriate types of analyses and that they collect the data required to make effective instructional decisions.

During the Analysis phase, it is important for the Instructional Development Team to determine if the course will be “new” (i.e., new content), or if it will be a course conversion or update. If the course is to be converted or the course materials already exist, the Instructional Development Team should begin by validating the existing content, starting at the learner analysis. The Content Delivery Strategy Tool should be used during the Analysis phase. This tool will help developers organize the existing information which would otherwise be captured during a thorough analysis. When the Instructional Development Team completes the Content Delivery Tool, they can use the Delivery Media Analysis Tool to determine the appropriate training delivery solution for the course.

Tasks

The major tasks to consider in the Analysis phase include:

Note: The nature and scope of each project determines which types of analyses are conducted, as well as the order in which they are conducted. While the Analysis phase activities are listed sequentially, they can be completed in whatever order is most appropriate. Depending on the nature of the project, the Instructional Development Team may not need to complete some activities.

1.	Learner Analysis (Target Population)
2.	Environmental Analysis
3.	Job and Task Analysis
4.	Content Analysis
5.	Learning Analysis
6.	Media Analysis
7.	Review and Approval

Data Collection

Explanation

Data collection is utilized through the analysis process. The Instructional Development Team may select from a variety of methods to collect data, and the methods that they select depend on the purpose and the context for the particular analysis. In some cases, using a combination of methods provides the most accurate information, since the data collected can be compared and validated.

The five most often used data collection methods are as follows:

1. Review existing data (e.g., competencies, performance reviews, and course evaluations)

   Much of the data required for the analyses may already be documented in other sources. The Instructional Development Team can use a variety of documents, including policy directives, manuals, handbooks, courses, personnel reviews, and course evaluations to gather relevant data. While the types of documents they use will depend on the type of analysis they conduct, reviewing multiple sources enables the Instructional Development Team to cross-check the validity of the data. The Instructional Development Team should ensure that only the most stable and current versions of any documents are used.

2. Conduct interviews

   Interviews involve active interchanges between the interviewer and the source(s). Sources could include other course managers, Subject Matter Experts (SMEs), instructors, top performers, and others that may be able to provide the information. The nature of the interview can vary depending on the size and scope of the project. The interview can be conducted in person or by telephone, and can be conducted with one individual or a group of individuals. Depending on the size, scope, and requirements of the project, interviews can be very formal, highly structured interchanges with prepared questions, or very casual interchanges, conducted with a great deal of flexibility.

3. Conduct observations

   Conducting an observation involves watching as an individual completes a task, and taking detailed notes about what the individual actually does while performing the task. This method can provide valuable information about how a job is done, as well as information about problems an individual may have in completing the task, when used systematically.

   Observational data can be collected in a structured or unstructured fashion. A best practice is to use an unstructured method of observation to obtain an initial feel for a situation and then follow up with a structured observation. Structured observations reduce the potential for bias, increase the reliability of observations, and result in

a more accurate data report. To ensure the accuracy of the data, it is advisable to observe the task being completed several different times by different individuals.

4. Facilitate focus group meetings

   Focus groups are meetings with groups of people who are familiar with the job or subject matter. They are used to gather and dispense information quickly and to build rapport between the Instructional Development Team and personnel within an organization. Focus group meetings are used to accomplish the following:

- Solicit opinions about actuals, optimals, attitudes, causes, and solutions
- Determine options and range of alternatives
- Prioritize information
- Make individuals aware of what is happening
- Build rapport and solicit support

5. Surveys and questionnaires

   Surveys and questionnaires are forms that contain sets of questions designed to gather specific information from a targeted population. They gather data from a potentially large number of respondents. Often they are the only feasible way to reach a number of reviewers large enough to allow statistical analysis of the results. Surveys and questionnaires can use a variety of question formats, and are typically designed to collect information from a random sample of respondents.

Analysis planning should always take into consideration the possibility that the analysis process will be constrained in some manner, such as by time, cost, environmental conditions, or management's reluctance to support the analysis. However, regardless of the constraints encountered, adequate planning before starting an analysis will help ensure that the analysis is conducted by an Instructional Development Team in an effective and efficient manner.

Process

The following steps should be considered during the data collection process:

- Identify data requirements and sources
- Determine collection methods
- Select collection tools/procedures or develop
- Identify collection protocols
- Prepare personnel to conduct analysis activities

When collecting data, the Instructional Development Team should consider which, and how many, individuals need to be involved in the analysis.

If the target audience is small, the Instructional Development Team can include the entire population. However, if the population is large, the better option is to include only a sample of the population. A sample is a small portion of the population, and possesses the same characteristics as the

larger group from which it is drawn. To ensure that the sample is representative of the larger population, individuals should be selected randomly to participate in the survey or questionnaire. With a random sample, all members of the total population have an equal and fair chance of being selected to receive the survey or questionnaire.

One way to ensure that the sample is randomly selected is to assign numbers to everyone in the total population and then randomly select a certain portion of the numbers for inclusion. The Instructional Development Team should ensure that the sample represents the population as a whole.

Developing Tools

Tools used during the Analysis phase may include Commercial Off-the-Shelf (COTS) or custom-made products such as simple print checklists, lists of standardized questions (used to guide interviews or observations), or automated data collection tools.

Regardless of the type of tool, the goal is the same – to standardize the data collection process. Data is more likely to be accurate and usable when it is collected using a standardized format.

Before developing a new tool, the Instructional Development Team should consult with available organizational sources to see if an agency or COTS tool already exists that can be used. If a suitable tool can not be found, it will need to be developed.

When developing tools, the Instructional Development Team should make the following considerations:

- Allow enough time to develop whatever tools are needed to conduct the analysis.
- If the tool is being newly developed, have qualified SMEs review the draft product to validate that it will serve its intended purpose.
- If the tool is print-based, allow enough time to reproduce and distribute copies to survey participants.
- Consider using an automated tool if the target population is large or widely dispersed.

Interviews/Focus Groups

Conducting an effective interview or focus group can be challenging. Unless a consistent process is followed, the Instructional Development Team may fail to gather data that is consistent enough to support the analysis.

Before conducting interviews or focus groups, the Instructional Development Team need to do the following:

- Identify the content areas to be covered.
- Develop a standardized list of questions for each content area.
- Review the list of questions with a knowledgeable SME to validate that it is comprehensive enough to provide the needed data.
- Establish guidelines for conducting the interviews or focus

groups.

When conducting the interview or focus group, adhere to the same format and ask the same questions in the established order. This is especially important if multiple interviews are conducted or if more than one analyst is involved in the data collection effort.

Survey

One approach for developing surveys and questionnaires includes the following:

- Determine what is needed and from whom.
- Develop a standardized list of questions.
- Review the list of questions with a knowledgeable SME to validate that it is comprehensive enough to provide the needed data.
- Prepare clear instructions for participants to follow.
- Pilot the survey or questionnaire and revise it as necessary.

Protocols

In addition to data collection tools, the Instructional Development Team should also identify the protocols or guidelines that will be followed during analysis activities. Protocols help the Instructional Development Team understand how to carry out the analyses and interact with the client.

When establishing protocols, the Instructional Development Team should consider the following:

- Determine who will contact/schedule sources.
- Make clear to participants what they need to do and when they need to do it. The responsibility of contacting sources should be assigned to a specific individual who will help ensure sources are contacted in a consistent and timely manner, remain aware of their responsibilities, and will be at their assigned locations at the right time.
- Identify how sources will be contacted.
- Determine how sources will be contacted. If enough time is available, initial contact can be made electronically or by mail. However, it is often advisable to follow up with a personal phone call to ensure participants clearly understand their role in the activity.
- Provide clear directions.
- Ensure participants understand clearly what they are expected to do. Directions, whether for attending an interview or completing a questionnaire, should be clear and easy to understand and provided in a timely manner. Providing participants with sufficient notice is especially important if their participation requires that they travel or be away from their assigned jobs for a significant period of time.

- Determine how follow-up contact will be provided.
- Ensure that each participant receives an acknowledgement, in writing or by phone, thanking them for their participation. Individuals who participate in focus groups and interviews, or who complete surveys and questionnaires, provide a valuable service.

Resource:

Analysis Planning Tool – Example

The Analysis Planner provided below is a useful tool for documenting an analysis plan. This is an example form that can be used to identify the context (including resources and constraints), the purposes (including information needed, information sources, and status of the information), and data collection methods and sources.

Analysis Planner		
Context		
Resources	**Constraints**	
Managers	Time and Money	
First Time Supervisors		
SMEs		
Existing Data		
Purposes		
Description	**Source**	**Status**
Identify Optimals	Master Task List	On-Hand
Identify Actuals	Supervisors/Standards	Need
Determine Attitudes	SMEs	Need
Identify Causes	Supervisors	Need Urgently
Identify Solutions	Determine After Cause Identified	N/A

Analysis Planner	
Data Collection Methods and Sources	
Method	**Specific Source**
Review Existing Data	Directives
Conduct Observation	Managers/Supervisors
Conduct Interview	SMEs
Review Existing Data	Master Task List

Resource:
Survey/Questionnaire Development Checklist Job Aid

Survey/Questionnaire Development Checklist Job Aid	
Survey/Questionnaire Cover	
	Is the survey/questionnaire addressed directly to the respondent?
	Is the purpose of the survey/questionnaire clearly stated?
	Does the survey/questionnaire include appropriate introductory comments?
	Does the survey/questionnaire explain how the respondent was selected to receive the survey/questionnaire?
	Is the importance of responding to the survey/questionnaire explained?
	Does the survey/questionnaire explain how and when to respond?
	Is the respondent “Thanked” for participating in the survey/questionnaire?
Survey/Questionnaire Directions	
	Are the directions clearly stated?
	Are the directions brief?
	Are the directions written for the appropriate audience?
	Do the directions include all of the information needed to respond to the survey/questionnaire?
Survey/Questionnaire Items	
	Are the items and pages numbered?
	Are the items written to the appropriate reading and interest level of the respondent?

Survey/Questionnaire Development Checklist Job Aid	
	Are white space and bold, highlighted, and underlined text used appropriately?
	Is there only one purpose per item?
	Is each item linked to a specific item type?
	Are the items clustered or grouped according to the parts of the job or task?
	Are the items primarily forced-choice items?

Task 1: Learner Analysis (Target Population)

Explanation

A learner analysis is another very important step in the Analysis phase. Without knowing who their audience is, the Instructional Development Team cannot design the instruction to fit the audience's specific needs. A learner analysis involves analyzing the population targeted to receive the instruction, as well as the target population's learning environment. The information gathered during this analysis enables the Instructional Development Team to make critical design decisions such as determining what instructional strategies and delivery methods will be most appropriate and effective for the learners. A learner analysis, or gathering information about the target audience, will help the Instructional Development Team determine the best instructional strategies and methods and the best delivery environment for their learners.

A learner analysis (sometimes called target audience or target population analysis) involves collecting data about the individuals targeted to receive the instruction. The analysis answers the following questions about the target audience:

- Who are they?
- What do they know?
- Where do they learn?

The data collected during a learner analysis is used to develop a profile of learner characteristics. This profile includes demographic information and specific information about the probable range of skills and knowledge on the subject matter possessed by individuals in the target population.

This data can be used to confirm that learners have the prerequisite knowledge and skills to successfully complete the instruction.

Process

Using data collection methods, gather the applicable information to define the target audience. Categories of information include, but are not limited to, the following:

- **Entry behaviors**: Pre-existing skills, knowledge, and attitudes (in general).
- **Prior knowledge of topic area**: Level of knowledge regarding learning topic.
- **Attitudes toward content and potential delivery system**: How do learners feel about the content and how it will be delivered (i.e., what is in it for me?)?
- **Academic motivation**: Is the audience interested in continued learning?
- **Educational and ability levels**: Achievement and ability levels

of the learners.

- **General learning preferences**: Learning styles (i.e., how does the target audience learn most effectively?).
- **Attitudes towards the training organization**: The feelings about the organization delivering the learning (positive or negative).
- **Demographics**: General characteristics that learners may share (i.e., age, sex, formal educational levels, geographic locations, etc.) (Dick, Carey, & Carey, 2005, pp. 101-103).

Steps:

1. Identify data requirements
2. Collect, analyze, and validate data
3. Document findings and recommendations

Resource:

Learner Characteristic Data - Sample Questions
Who are they?
What do they know?
Where do they learn?
Are they in the same geographic area or dispersed across the country?
Who is the primary and secondary target audience?
How large is it? • Small (under 500) • Medium (500 – 1,000) • Large (over 1,000) • Unknown
What knowledge do learners currently have about the proposed training? • Low (Little or no knowledge/proficiency related to the subject) • Medium (Some knowledge/proficiency related to the subject) • High (Thorough knowledge/proficiency related to the subject) • Unknown
Are they comfortable with technology?
Are they open to learning new things?
What is the formal education level? • Secondary education only

Learner Characteristic Data - Sample Questions
• Undergraduate course work • Undergraduate degree • Graduate course work • Graduate degree • Professional certification • Other
Job Training and Experience
Communication Skills • Low (reading grade level 6-8) • Medium (reading grade level 9-12) • High (reading grade level above 12) • Unknown

Resource:

Please see the Planning/Analysis Form in the Responder Training Development Center (RTDC) Library.

Task 2: Environmental Analysis

Explanation

An environmental analysis evaluates the environment in which the instruction and learning will take place. The purpose of an environmental analysis is to gather information about the environment in which instruction is to be applied. The Instructional Development Team need to understand as much as possible about the learner's environment and the way it affects the learner's ability to apply or access instruction (if instruction will be delivered via Distance Learning technologies). This information is critical when designing instruction. It impacts decisions the Instructional Development Team makes about course length, structure and delivery, as well as decisions about the use of instructional and assessment strategies The more closely aligned the learning environment is to the work environment, the more authentic the learning.

This analysis determines two aspects of the learning context:

- What is – A review of the setting in which instruction will take place.
- What should be – Facilities, equipment, and resources that adequately support the intended instruction (Dick, Carey, & Carey, 2005, p. 105).

The information collected during an environmental analysis is used to make decisions about:

- Learning strategies
- Media types and instructional delivery methods
- Resource requirements (such as equipment and facilities)

Environmental analysis information is especially important if Distance Learning technologies are used to deliver instruction. The Instructional Development Team needs to understand what environmental constraints exist (such as bandwidth limitations or firewall issues) before designing or developing instruction.

Process

Using data collection methods, the Instructional Development Team gathers the applicable information to define the environment in which the instruction and learning will take place.

In the environmental analysis, the Instructional Development Team should focus on the following elements:

- Compatibility of Site with Instructional Requirements – Does the learning environment support the instructional goals?
- Adaptability of Site to Simulate Workplace – Can the Instructional Development Team simulate work environment factors in the learning environment that are critical to performance?

- Adaptability for Delivery Approaches – What are the limitations of the learning environment as well as the needed tools?
- Learning-Site Constraints Affecting Design and Delivery – Does the learning environment have any limitations that will affect the design and delivery of the instruction (i.e., incompatible computers, older technology, etc.) (Dick, Carey, & Carey, 2005, pp. 105-106)?

Steps:

1. Identify data requirements
2. Collect, Analyze and Validate Data
3. Document Finding and Recommendations

Resource:

Learner Environmental Data Sample Questions

Learner Environment Data – Sample Questions
What tools, equipment, and other resources will learners have available when they apply what they have learned?
Under what conditions will learners use what they learn?
What barriers in the workplace may prevent learners from applying what they have learned to do and how can these barriers be surmounted?
What are the average training time increments available to learners? • Minutes per day (30, 60, 90, other) • Several consecutive days • A full week
What is the average amount of time learners have access to a PC? • Minutes per day (30, 60, 90, other) • Entire work day • None
Do learners have access to digital text technologies? • Personal Digital Assistant (PDA) • Internet-enabled cell phone

Is a location available in which learners can receive training? • Office • Training room • Field • Home • Other • Unknown
Will learners have access to different technologies and tools? • PDAs • Internet-enabled cell phones • Voice-over Internet Protocol (VoIP) • Audio • White board
What is the noise level of the proposed training environment? • Low (e.g., noise level maintained at a minimum) • Medium (e.g., intermittent distractions) • High (e.g., continuous distractions)

Resource:

Please see the Planning/Analysis Form on the RTDC.

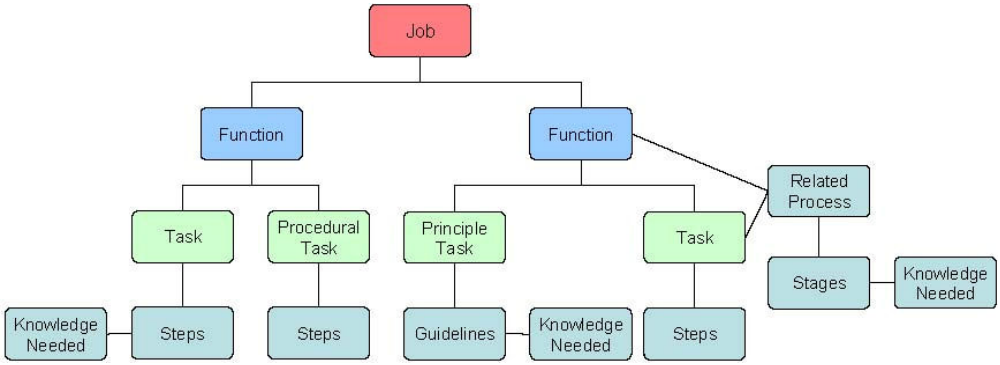
Task 3: Job and Task Analysis

Introduction

A job and task analysis is conducted only if the job and tasks are currently not documented. The Instructional Development Team should review the Universal Task List (UTL) and Target Capabilities List (TCL). Although many consider job and task analyses the same function, they are really analyses of two different items. A job analysis provides a detailed listing of the duties and tasks necessary to perform a specific job or mission. When completed, an occupational analysis provides a breakdown of a job into functions and tasks similar to the Job Task Analysis Taxonomy illustrated below. A task analysis is closely associated with an activity called job analysis. A task analysis takes the job analysis to a deeper level by further analyzing a task(s). A task analysis provides additional information about the tasks associated with job duties.

Data for the job and task analyses is collected from observation, interviews, and documentation. The following resources are available and coordinated through the Office of Grants and Training (G&T):

- Approved requirements
- Sponsors, originators, and SMEs
- Government-Furnished Information (GFI)



Explanation – Job Analysis

A job analysis is "the process of gathering, analyzing, and synthesizing descriptions of what people do in their jobs" (Dick, Carey, & Carey, 2005, p. 23).

Process – Job Analysis

The Instructional Development Team should consider the following steps during the job analysis:

1. Interview those who perform the job.
2. Interview those who work in the environment surrounding the job.

3. Inventory the tasks that comprise the job, grouping tasks according to common characteristic categories (duties).
4. Have SMEs and/or job incumbents analyze the inventory to determine whether the tasks are actually part of the job.
5. Collect data (e.g. survey) based on feedback. Sample questions may include:
    - Is this a task performed as part of the job of the target audience?
    - How frequently is the task performed?
    - What percentage of the workday does the target audience spend on this task?
    - How critical is it that task to the success of the job?
    - How difficult is this task to perform?
6. Distribute the survey and have participants complete.
7. Analyze the survey results against set objectives for the survey data.

When observing expert performers at work, the Instructional Development Team should consider the following:

- Look for tasks currently being performed, as well as those that should be performed, but are not yet identified
- Search for any special, recurring wartime or local tasks
- Ask about the details of the tasks including:
    - Equipment and tools needed
    - Mission priorities
    - Task criticality
    - Number of people performing the task
    - How frequently the task is performed
    - Minimum standard of performance for the task (what determines the go/no go level?)

Explanation – Task Analysis

A task analysis takes the job analysis to a deeper level by further analyzing a task(s). A task analysis provides additional information about the tasks associated with job duties. During task analysis, each task is carefully analyzed to identify component elements and determine performance requirements.

A task analysis involves breaking a task down to identify the following:

- Subtasks (also called performance steps)
- Sequence of steps
- Conditions or limits under which the task will be performed
- Standard of performance that must be achieved

Breaking tasks down into subtasks, conditions, and standards provides a focus for training. This breakdown enables the Instructional Development Team to better understand the tasks and enables them to develop more

accurate learning objectives and more effective instructional materials that are supportive of the tasks.

Process – Task Analysis

The Instructional Development Team should consider the following tasks when conducting a task analysis.

1. Select the desired task(s) to analyze.

   A task is an observable and measurable unit of work activity that forms a significant part of a job. It has a definite beginning and end, typically involves people interacting with equipment, media, or other items, and results in a meaningful product or process. A task can include both physical and mental activities.

2. Develop task statements.

   To ensure the development of quality task statements, the Instructional Development Team should follow specific guidelines and standards. These guidelines include the following:

- Write a separate, specific statement for each task.
- Begin each task statement with a present-tense action verb.
- Follow each verb with an object indicating the action to be performed.

Task statements should adhere to the standards provided below.

Standard	Correct	Incorrect
Clear	Perform basic first aid	Accomplish buddy care
Concise	Maintain personal hygiene	Accomplish necessary steps involved in the process of personal hygiene
Complete	Complete Task Description Worksheet (Form No. 123)	Inventory things
Relevant	Install course from Compact Disc (CD)	Copy CD

The following statements are examples of task statements:

- Perform individual drill movements
- Sort mail
- Clean engine
- Write report

3. Identify subtasks detailing the relationships among elements, describing the tools and conditions used in performing the task(s), and describing the standards for successful performance.

   Subtasks, or performance steps, specify the actions required to accomplish a task. Subtasks are groupings of work activities that, when combined, make up a task.

4. Examine each task statement to determine whether a task statement contains more than one group of activities that must be performed.

5. Review the complete list of subtasks for each task to make sure that no subtasks overlap and that the subtasks account for all performance required in the task.
6. Write a subtask statement for each subtask identified.

   When writing subtask statements, the Instructional Development Team should follow these guidelines:

- Write a separate, specific statement for each subtask.
- Begin each subtask statement with a present-tense action verb.
- Follow each verb with an object indicating the action to be performed.

This sample demonstrates a breakdown of subtasks that comprise a task.

Task	Perform pre-operation inspection.
Subtasks	Check oil and coolant for proper levels. Check tires for proper pressure. Check all belts for excessive wear. Check all hoses for leaks.

Conditions set forth the real-world circumstances in which a task is to be performed. Conditions describe:

- The equipment and resources needed to perform the task on the job
- The assistance, location, and safety considerations related to task performance

The following list provides examples of typical conditions for tasks:

- Given a first aid kit…
- Without the aid of references…
- In a field environment…

Standards provide the proficiency level expected when the task is performed. The following are typical conditions standards for tasks:

- Without error in accordance with policy…
- Within 10 minutes…
- By achieving 50% hits on the target…

7. Validate tasks

   Have SMEs and/or job incumbents analyze the task descriptions as to their accuracy (i.e., is this really the task?)

   Several techniques can be used to validate the task lists as shown in the table below:

Function	Technique
Verifying assembled task lists for an existing job	• Questionnaires • SME interviews • Task observations of performance experts

Developing a new task list for a new job	• Interviews • Questionnaires • SME interviews

8. Select tasks for instruction.

   After the task and subtask lists are verified, select the tasks to be instructed. Since instructional budgets and the time available for instruction are limited, it is often not economical or reasonable to include all tasks.

Job/Task Analysis Data	
Item	**Description**
Job	Job or portion of the job being documented
Functions	Highest level of job breakdown consisting of multiple tasks
Tasks	Job activities (behavioral or cognitive) consisting of multiple steps
Conditions	Conditions under which the task is performed
Criteria	Standards under which the task must be completed
Steps/Guidelines	Steps (for procedural tasks) – Sequenced, discrete actions (behavioral) or thoughts (cognitive) required to complete a task Guidelines (for principle tasks) – Guidelines required to complete the task
References	List of related regulations, reference materials, job aids, other training materials, etc.
Tools	Equipment, tools, or system information required to complete the step or apply the guideline
Criticality	Measurement of how essential the task is to job performance and the level of performance (pass/fail) or mastery
Frequency	Number of times the task is performed in a given period and in relation to other tasks

Resource:

Target Capabilities List (TCL)/Universal Task List(UTL) Information

The TCL/UTL information can be found on the following page of the G&T Website:
http://www.ojp.usdoj.gov/odp/assessments/hspd8.htm

Task Analysis Worksheet	
Task Name:	
Condition:	
Equipment (equipment and tools required to performing task)	
Safety (safety considerations when performing task)	
Cue (what prompts performance)	
Location (where the task is performed)	
Standard	
Standard of Performance (time, rate, percent)	
References (documentation used in task performance such as regulations)	
Subtasks (performance steps)	

Resource:

Task Description/Task Breakdown Worksheet -Sample

The sample Task Description and Task Breakdown Worksheets that follow can be used to document data collected during the task analysis. These worksheets can be modified as needed.

Task Break Down	
Task Name:	
Objective:	
Steps in Task Performance:	**Notes:** (List skills required, safety Requirements, cautions, references, materials, or tools, and assistance required.)

Resource:

Task Analysis Worksheet - Sample

The sample Task Analysis Worksheet that follows can be used during the task analysis.

Note: Skill can also refer to ones “Ability” to perform the task.

Job Task Analysis Worksheet	
Job	
Duty	
Task	
Task Attribute	
Output (desired behavior)	
Standard of Performance (time, rate, percent)	
Equipment (equipment required to perform task)	
Tools (tools required to perform task)	
Safety (safety considerations when performing task)	
Cue (what prompts performance)	
Conditions (weather, 2v Many, etc.)	
Location (where the task is performed– aircraft, OFT, etc?)	
References (documentation used in task performance such as checklist, Dash One)	
Human Interface (will others be involved in performing the task?)	
Subtasks	
Knowledge (facts, concepts, principles that are required to perform the task)	
Skill (skill that is necessary to perform the task)	
Attitude (interest, motivation necessary to perform the task)	

Resource:

Subtasks – Data Collection

When collecting data, the Instructional Development Team should ask questions appropriate to the type of information being collected and consider asking questions like those listed in the table below.

To Identify . . .	Ask the Question . . .
Subtasks	
Subtasks	What does the learner do first?

To Identify . . .	Ask the Question . . .
Conditions	
Tools or materials	What is used to perform the task (equipment or computer)?
Cues	How does the learner know when to do what?
Work environment	Under what condition is the task performed?
Standard of Performance	
What is the standard of acceptable performance?	
How does the Instructional Development Team know when the task is performed to satisfaction?	
Is the standard based on completeness?	
Is the standard based on accuracy?	
Is the standard based on time?	

Task 4: Content Analysis

Explanation

During content analysis, the content needed to provide instruction for identified job requirements is identified and organized. The activity results in the development of instructional goals as well as a high-level hierarchy of the content learners must know.

This type of analysis is appropriate for knowledge-based instruction. If the instruction to be developed is skill-based, the Instructional Development Team will conduct a task analysis, rather than a content analysis.

Content analysis provides detailed information about the content to be presented in a course. A careful analysis enables the Instructional Development Team to break the content down into smaller chunks of related information.

These chunks of information are then organized into a logical hierarchy for presentation to the learner. Ideally, the most basic information is presented first, followed by material of increasing complexity. Structuring information in this way enables learners to acquire the foundational knowledge and skills needed to understand the increasingly complex information that follows

Process

Steps:

1. Review tasking.

   The Instructional Development Team should review the tasking carefully to determine the scope of the instructional need as well as the subject matter.

   If the requirement is to update the instruction, the focus is on the educational requirements that need to be added, revised, or deleted. In this case, a full content analysis may not be required. However, if the course is being newly developed or converted to a new format, a thorough analysis will be required. The Instructional Development Team should ensure that the scope of the project is clearly established and that required resources (including SMEs) are available.

   A careful review of the tasking also helps determine the content to be included as well as data sources that may be useful during the analysis. The Instructional Development Team should consider whether instructional content already exists that could be repurposed to meet the requirements of the current project.

2. Collect and analyze data.

   Data for a content analysis are collected from documentation and interviews with appointed personnel. The following resources are available and coordinated through G&T:

- Approved requirements

- Sponsors, originators, and SMEs
- Government-Furnished Information (GFI)

3. Validate data and document findings.

   Once the data has been collected and analyzed, it is advisable to have knowledgeable personnel review and validate the findings to ensure that the data is accurate and complete.

   After the data has been validated, the Instructional Development Team should ensure that findings and recommendations are documented as required by the client. Update references used in existing content as needed.

4. Review existing content.

   Review G&T Course Catalogs to see if the training already exists.

5. Write a high-level outline.

   A thorough content analysis identifies the goals of the instruction and the content to be included. It also results in a high-level outline (hierarchy) of how the information will be organized and presented to the learner. This information is then further analyzed during learning analysis.

Resource:

Content Analysis

Data Collection

For each course, the Instructional Development Team should collect, validate, and document the following information during a content analysis:

Item	Description
Title	Course title
Description	Comprehensive course description
Goals	Broad course goals encompassing learner outcomes
Objectives	Measurable objectives stating what the learner will be able to do by the end of the course, to include terminal and enabling learning objectives
Prerequisite(s)	Training that must be completed prior to course enrollment or skills and knowledge learners must possess before taking training
Estimated Length	Estimated time required for the average learner to complete the lesson
High-Level Instructional	Suggested textual, graphical, and audio options, job aids, exercises, group activities, and discussion topics

Item	Description
Strategy	that might be used to teach the lesson content
References	List of related regulations, reference materials, job aids, other training materials, and related sections

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Resource:

High-Level Outline

A typical high-level outline consists of the following:

Item	Description
Title	Course title
Description	Comprehensive course description
Goals	Broad course goals encompassing learner outcomes
Objectives	Measurable objectives stating what the learner will be able to do by the end of the course to include terminal and enabling learning objectives
Prerequisite(s)	Training that must be completed prior to course enrollment or skills and knowledge learners must possess before taking training
Estimated Length	Estimated time required for the average learner to complete the lesson
High-Level Instructional Strategy	Suggested textual, graphical, and audio options, job aids, exercises, group activities, and discussion topics that might be used to teach the lesson content
Content Outline	Mapping each learning objective to a module or lesson; create a hierarchical content outline

Resource:

Content Delivery Strategy Tool

This is a tool for assessing existing course content (from the perspective of strategies, concepts, and tested practices) in order to define modules that are appropriate for a Blended Learning solution. Specific course elements that will be addressed here include:

- Target audience composition
- Course goals and objectives
- Course modules
- Content allocation
- Course prerequisites
- Course learner preparation
- Course follow-up
- Course assessment and evaluation

Target Audience Composition

The number of learners and their job duties, knowledge, experiences, and learning styles constitute a profile by which better decisions can be made about course development and delivery. This profile is used to support the development and delivery process to maximize learner understanding, retention, and application.

Considerations for analyzing audience composition:	
1.	Approximately, how many participants will attend each session? ____
2.	Who is the target audience? Check all that apply. ❑ Directors ❑ Senior Executives ❑ Mid-level Managers ❑ First Line Supervisors ❑ Entry-level Personnel ❑ Systems/Technical Professionals ❑ Program and Administrative Support ❑ Other (please specify) _____
3.	Will the audience be mixed (see positions checked above)? ❑ Yes (if yes, briefly describe how this will affect the training goals) ❑ No ❑ Does it Matter?
4.	What is the general skill or knowledge level of participants? For example:

Considerations for analyzing audience composition:	
	❑ Secondary education only ❑ Undergraduate course work ❑ Graduate course work ❑ Professional certificates, qualifications, course work, etc. ❑ Specialized training
5.	What is the participant skill or knowledge level (from training, on-the-job training, other relevant experience) in the specific area covered by the course topic? ❑ High ❑ Medium ❑ Low
6.	What is the participant level of technology "literacy"? ❑ High ❑ Medium ❑ Low
7.	What is their experience level with Distance Learning technology? ❑ High ❑ Medium ❑ Low
8.	What are characteristics of the learners? Check all that apply. ❑ Eager (e.g., _____) ❑ Overdue for training (e.g., _____) ❑ Fear losing job (e.g., _____) ❑ Hostile (e.g., _____) ❑ New position (e.g., _____) ❑ Need new skills to incorporate a new program or policies (e.g.,_____)
9.	Why are participants taking this course? Check all that apply. ❑ Required by statute ❑ Required by supervisor ❑ Selected by participant for professional development ❑ Initial Exposure ❑ Advanced Practice ❑ Cross-training ❑ Encouraged by division providing training ❑ Other (please specify) _____

Considerations for analyzing audience composition:	
10.	How will they apply what they learn through this course to their jobs? Check all that apply. ❑ Please specify _____

Course Goals and Objectives

To effectively present training information, increase knowledge and understanding, and promote skill-building, the Instructional Development Team must be able to clearly express what they expect participants to learn. This section of the tool assists the Instructional Development Team with identifying specific course goals and objectives.

Goals:

Course goals describe broad, encompassing learning outcomes. For example, the goal of this course is to:

Increase knowledge and understanding about...

Foster communication about and resolution of....

Establish consensus on...

Familiarize responders with...

Introduce the concepts and theories related to...

Expose participants to the principles of...

Question: What is the overall goal of this course?

_____

_____

_____

Objectives:

Terminal Learning Objectives (TLOs) describe exactly what learners will be able to do when they complete the lesson. TLOs have three components

- Behaviors – Describes what the learners will be able to do
- Criteria – The limit or range of acceptable performance; used to evaluate the learner's performance.
- Conditions – Describes the conditions that will prevail while a learner carries out a task.

Objectives are stated as specific, "hard", or action verbs. For example: By the end of this Mid-Career Retirement Planning course:

- Identify employer retirement benefits
- Access information about time-sensitive relevant benefits
- Devise a personal financial plan

Question: What should participants be able to do after they complete the course? _____ _____ _____

Course Modules

Course modules represent information that can stand alone as a lesson or session. This part of the tool helps the Instructional Development Team to segment training information, so that it is easier for learners to grasp and retain. Modularizing content also aids the Instructional Development Team in identifying content for a distinct method of training.

Considerations for Analyzing Course Modules:	
1.	What are the major subtopics of the course?
2.	Is there enough information for each of the above subtopics to justify a module? ❑ Yes ❑ No
3.	If not, are there subtopics that naturally can be grouped together? ❑ Yes ❑ No If yes, which ones? _____ _____
4.	What are the TLOs of each module? What should participants be able to do after they complete Module 1? _____ _____ _____ _____
5.	What should participants be able to do after they complete Module 2? _____ _____ _____ _____
6.	Do each module's objectives appear to be distinct from one another, and important and substantive enough to stand on their own as subject matter? ❑ Yes ❑ No
7.	Is there a logical start and end to each module

	❑ Yes ❑ No
8.	Is there a logical connection from one module to the next? ❑ Yes ❑ No

Content Allocation and Course Compression

This section of the tool aids with identifying essential, optional, and supplemental information.

Course compression often takes place when existing course materials that are delivered in a face-to-face environment (i.e., workshop or seminar) are converted to a Distance Learning format (i.e., IVT, Web, etc.) Compression occurs for several reasons. Course content is streamlined and divided into modules containing only content that is specific to that module's learning objectives. Module content is restructured and reorganized for the specific format of the delivery technology. For example, content is compressed when converted to Web-based Training (WBT) because it is not delivered linearly, as in a face-to-face format. The face-to-face format includes session start/stop times, breaks, and review and discussion times. One hour typically equals 50 minutes.

Considerations for Content Allocation and Course Compression:	
1.	For each module, what information is essential (list below or highlight on content outline)? _____ _____
2.	What information is not essential (strike out on outline or make mental note)?
3.	What information is optional, should there be time or the opportunity available to include it? _____ _____ _____ _____
4.	What information, or lack thereof, is likely to trigger participant questions and comments? _____ _____ _____ _____
5.	What information could be provided before or after the core course delivery through another format, or as supplemental material? (e.g., A pre-read would work, if often provided to ensure participants in a class

	have the same level of knowledge regarding the session subject.) _____ _____ _____
6.	Does the compression of content above reorganize or restructure the modules identified in the previous section? ❑ Yes ❑ No

---

Course Prerequisites

This section highlights considerations for identifying previous experience, training, or education needed before training begins.

Considerations for Analyzing Course Prerequisites:	
1.	What previous experience, training, or education should participants have to take this course? For example: Specific knowledge and experience: _____ Completions of a previous training course: _____ _____ _____
2.	What are the exceptions, if any, to this course's standard prerequisites? For example: Educational background may replace prerequisites Similar experiences may replace prerequisites _____

Course Participant Preparation

Course preparation is pre-course materials (i.e., questionnaires, exercises, self-assessments, or video tapes) or a pre-course learning event (i.e., audio conference or online conference) that the participant is required or recommended to complete before attending a course. The content of the materials or learning event are directly relevant to, and part of, the course content to be delivered and increased participant learning readiness for course content.

Considerations for analyzing participant preparation:	
1.	How important is setting participant expectations before the course? ❑ Very ❑ Somewhat

Considerations for analyzing participant preparation:	
	❑ Not very
2.	Would participants benefit from seeing some portion of course content before the course? ❑ Yes ❑ No If yes, what portion(s)? _____
3.	Is a Pre-test necessary? ❑ Yes, to provide a baseline for later analysis ❑ Yes, to sort out those needing new or refresher training before starting a class ❑ Yes, other ❑ No

---

After Course Follow/Reinforcement/Continuous Learning Opportunities

This section of the tool enables the Instructional Development Team to capture potential course follow-up elements including:

- Address question-and-answer or discussion overflow
- Provide clarification/increasing understanding
- Support the transfer of new knowledge or skills to the job
- Provide additional details and examples

Considerations for Analyzing Course Follow-Up:	
1.	Is there course information that is likely to trigger more questions than time allowed during the scheduled session? ❑ Yes ❑ No If yes, list: _____
2.	Is there information that might require clarification or elaboration? ❑ Yes ❑ No If yes, list: _____
3.	Are there topics that might require more details and examples? ❑ Yes ❑ No If yes, list: _____
4.	Is this information provided in other supplemental training materials (i.e. workbook, information on the agency Intranet)?

Considerations for Analyzing Course Follow-Up:	
	_____

Course Assessment

Feedback and evaluation data from participants supports continuous program improvement. This section of the tool helps the Instructional Development Team to understand the process and structure for assessment and evaluation of course content for future improvement. Considerations for analyzing course assessment include the following:

Considerations for Analyzing Course Assessment:	
1.	What does the Instructional Development Team expect to learn from course evaluation? Level 1: Participant reaction/satisfaction Level 2: Learning effectiveness Level 3: Ability to apply learning/behavior Level 4: Results of application
2.	How will evaluation results be noted and passed along to course instructors or managers? For example: Copies of evaluation forms made available Synthesis and interpretation of evaluation forms made available Verbal Written _____ _____
3.	How will evaluation data be used to improve the course? For example: Modify/Add/Delete Presenter/Instructor integrate on own Course team meets and integrates evaluation results into process before the next course delivery _____ _____

Task 5: Learning Analysis

Explanation

Once the tasks and content have been determined, the Instructional Development Team conducts the learning analysis. The learning analysis serves several purposes in the PADDIE (Planning, Analysis, Design, Development, Implementation, and Sustainment) process. It enables the Instructional Development Team to:

- Translate tasks into learning outcomes
- Build a learning hierarchy of the knowledge and skills to be taught
- Identify prerequisite learning requirements

The information gathered during a learning analysis is used to define how instructional objectives are stated, as well as to determine what content will be included in the course and how the content will be sequenced.

Process

The Instructional Development Team should consider the following steps during the learning analysis:

1. Identify types of learning.

   There are many ways to categorize types of learning. Gagné (1985) developed a classification that included the following categories: intellectual skills, verbal information, cognitive strategies, motor skills, and attitudes. Gagné suggested that each type of learning required different internal conditions for information processing to occur.

   In the 1950s, Dr. Benjamin Bloom and a team of educational psychologists created an easy-to-understand taxonomy of learning that is still widely used today. Bloom's taxonomy identifies three categories (or domains) of learning behavior:

   - Cognitive (mental skills or knowledge)
   - Psychomotor (manual or physical skills)
   - Affective skills (attitude or growth in feelings or emotional areas)

   Like Gagné, Bloom et al., suggested that different instructional conditions are most likely to bring about these different types of learning behavior.

   After completing a content or task analysis, the Instructional Development Team has a list of instructional requirements. When conducting a learning analysis, the Instructional Development Team systematically reviews the instructional requirements, and uses a learning taxonomy to categorize each instructional requirement according to the type of learning associated with the task or content component. This process is repeated until the type(s) of learning associated with each task or instructional goal have been identified. Once completed, the knowledge, skills, and/or attitudes the learner

needs to acquire as a result of the instruction will have been clearly identified.

2. Identify levels of learning.

   In this step, each task or instructional goal is examined to determine which level of learning is required to satisfy the goal or meet the standards associated with the task.

   Identifying the level of learning associated with each task or instruction goal is an iterative process. Before concluding this step, the Instructional Development Team should ensure that an appropriate level of learning has been associated with each task or instructional goal.

Cognitive Learning	
Level	**Description**
Knowledge	Recall data or information (facts, theories, etc.) in essentially the same form as taught.
Comprehension	See relationships, concepts, and abstractions beyond simply remembering material. This typically involves translating, interpreting, and estimating future trends.
Application	Use learned material in new and concrete situations, including the application of rules, methods, concepts, principles, laws, and theories.
Analysis	Break down material into its component parts so that the organizational structure can be understood. This includes identification of the parts, analysis of the relationships between the parts, and recognition of the organizational principles involved.
Synthesis	Put parts together to form new patterns or structures, such as a unique communication (a theme or speech), a plan of operation (a research proposal), or a set of abstract relations (schema for classifying information).

Psychomotor	
Level	**Description**
Imitation	Observing and patterning behavior after someone else. Performance may be of low quality (e.g., copying artwork).
Manipulation	Being able to perform certain actions by following instructions and practicing (e.g., creating work on one's own after taking lessons or reading about it).
Precision	Refining, becoming more exact. Few errors are

Psychomotor	
Level	**Description**
	apparent (e.g., working and reworking something, so it will be "just right").
Articulation	Coordinating a series of actions, achieving harmony and internal consistency (e.g., producing a video that involves music, drama, color, sound, etc.).
Naturalization	Having high-level performance become natural, without needing to think much about it (e.g., using the controls on a video game).

Affective Learning	
Level	**Description**
Receiving	Be aware that a thing exists and pay particular attention to it.
Responding	React to a particular phenomenon in some way, such as acquiescing (reading assigned material), willingness to respond (voluntarily reading beyond assignment), or satisfaction in responding (reading for pleasure).
Valuing	Attach worth or value to any object, phenomenon, or behavior, ranging from accepting a value to commitment.
Organizing	Bring together different values, including conflicts between them, and then begin to build an internally consistent value system.
Characterizing	Pervasive, consistent, and predictable behavior (lifestyle) developing from a value system which controls behavior for a significant period of time.

3. Build a learning hierarchy of knowledge and skills.

   To build a learning hierarchy, the Instructional Development Team must organize and order the learning tasks or goals to ensure that mastery of the knowledge and skills for one goal provides learners with the knowledge and skills they need to complete each subsequent task.

   If the goal is to comprehend a complex concept, the Instructional Development Team must ensure that learners are first taught the required background factual knowledge that will enable them to comprehend the complex concept.

For example, if learners are asked to conduct a cost analysis that will indicate the relative costs and benefits of developing a course using a particular type of media delivery, they must first understand how to calculate cost and identify associated benefits.

4. Identify prerequisite knowledge and skills required.

   In this step, each task or instructional goal is analyzed to determine the supporting skills and knowledge needed to enable the learner to demonstrate mastery.

   This information is then used to identify any prerequisite learning required. Prerequisite learning refers to the information or skills a person needs to know or be able to do before being able to learn something else.

   This information is then used to identify any prerequisite learning required. Prerequisite learning refers to the information or skills a person needs to know or be able to do before being able to learn something else.

   For example, if a positive attitude toward safety is to be acquired, the learner needs to have the following:

- The cognitive skills (concepts and procedures) associated with safety
- A variety of verbal information about the advantages of following safety procedures or the consequences of not following them

   When completed, data from the learning analysis are used to design instruction that both builds on the knowledge and skills learners already possess and facilitates the mastery of new knowledge and skills.

Task 6: Media Analysis

Explanation

Media or "Delivery Media Analysis" helps determine the appropriate delivery solution for an existing training need. Before the design process begins, the instructional development team must identify how the instruction will be delivered to the learners, and need to work closely with Subject Matter Experts (SMEs) to determine the best methods and media. During media analysis, instructional developers examine the demands of the instructional situation and then decide which medium (or combination of media) will best meet the identified instructional needs.

There are three primary ways to deliver the instructional message:

1. **An instructor, trainer, or facilitator (Instructor-based delivery):** While instructor-based delivery can include the use a variety of other media (such as video, audio, and computer or print-based materials), the defining characteristic is that, without the instructor, the media is lifeless. That is, the media cannot deliver the instructional message by itself. The instructor is the primary catalyst; the associated media only support the delivery of the instructional message. Instructor-based delivery can be provided in traditional classrooms, virtual classrooms, or onsite as part of an On-the-Job Training (OJT) program.
2. **Specific media (Media-based delivery):** With media-based delivery, the media, rather than an instructor, is used to deliver the instructional message. The medium is a self-contained instructional unit that delivers information, stimulus, and feedback to the learner. Information can be delivered using a variety of different supporting technologies, including low tech solutions such as print (e.g., self-paced correspondence courses) as well as computers, video or audio tapes, and hand-held devices such as Personal Data Assistants (PDAs) and MP3 players.
3. **A combination of Instructor and Media-based Delivery (Blended Learning):** Blended Learning delivery solutions use both an instructor and some form of media to deliver instruction. For example, some instruction may be delivered via the Web while some is delivered by an instructor in a traditional classroom.

More about Blended Learning

It is important to note that current industry trends have been moving generally towards Blended Learning (the third type above). More specifically, Blended Learning is defined as "the combination of learning choices available to the audience so they can achieve mastery and improve business performance." It is a *compromise* between (1) business and performance objectives, (2) the way groups of learners learn best, (3) the various ways that the material can best be individualized, presented, and learned, (4) the available resources that support learning, training, business, and social

activities, and (5) the ways to maximize capabilities for access, interaction, and social relationships.

The concepts of compromise and balance are consistent throughout Blended Learning, and extend more broadly towards Media Selection in general. In fact, Media Selection could be viewed as determining the "proper blend" of media and instruction, rather than the single best selection of an instructional pathway. As noted above, an organization's resource constraints (the availability of technology, development resources, access to subject matter experts, funding, etc.) most often limit its selection of Blended Learning alternatives. For this reason, education and training professionals are challenged to create effective learning experiences with only the tools and resources at their disposal.

The Importance of e-Learning

e-Learning literally means electronically delivered learning. With the maturation of the Internet, many new Web technologies have become increasingly popular in learning (e.g., Web-based Training and Web collaboration). Many older technologies, such as satellite and audio conferencing, are also used effectively by many organizations. While e-Learning generally refers to formally structured courses or events, it also includes online simulations, games, and other electronic resources accessible via a Website or Portal.

E-Learning can be employed in any of three primary instructional types as defined in Section **Error! Reference source not found.** (page **Error! Bookmark not defined.**), whether it is providing a communications path between an instructor and their audience, encapsulating an entire course, or some combination of both. As with Blended Learning, e-Learning has become an almost industry-wide preference (for both public and private sectors). It will soon become very difficult to find any organization that is not employing e-Learning to some extent for education and training.

There are a several reasons why many organizations prefer maximizing their use of e-Learning:

1. Reduction of travel costs
2. More efficient content maintenance and delivery
3. Much greater consistency and reusability

The ability to modularize, document, and "metadata tag" (add data about the learning content to help with reuse, management, and organization) has been a guiding principle behind the de facto Web-based Training specification SCORM (Sharable Content Object Reference Module) as well as the DoD's Advanced Distributed Learning Registry (ADL-R). These models apply standards that enable learning content to be shared, reused, and discovered by a wide audience of users (assuming the underlying technology and resources are in place).

E-Learning Challenges

While the promises of Blended Learning and e-Learning are great, they also present a number of challenges. Available network connectivity, security

constraints, and end-user computing platforms often severely limit the nature of e-Learning available to an organization. Because of such limitations, end-users are sometimes disappointed that the resulting e-Learning failed to contain the rich media and high-end interactivity they expected. In other cases, the end-user audience may not be well-versed in computer technology, or the available instructors and subject matter experts may not truly feel comfortable delivering their material virtually. Again, finding the right media selection (or blend) is a careful balance of many factors. While some were mentioned early, a more complete list of considerations is provided later in the document.

Process

Media analysis is typically an iterative process that involves making a series of media tradeoffs to identify a list of potential media choices. There is no one right answer for every situation. Ideally, the Instructional Development Team begins this process without a bias for one medium over another. This ensures that designers first examine the identified needs and requirements of the instructional project and then decide which medium or media will best meet those needs.

The following steps should be considered when selecting media methods and types:

Develop a List of Potential Media

Media analysis is a process of identifying and eliminating media options to obtain a list of the best media choices for a particular instructional course or program. The process begins by establishing a list of potential media options.

The initial list of media delivery options should include all delivery methods that capability, budget, and development time realistically support. See a potential list of delivery options in the resource section below.

Also consider blended solutions that include both Instructor-based and media-based delivery methods.

Evaluate Potential Media

Once a list of potential media types has been identified, the next step is to evaluate. See Resource: Media Selection Analysis Tool

Interpret the Results

See Resource: Media Selection Analysis Tool.

Document Findings and Recommendations

All findings and recommendations, as required by the organization or contract, should be documented.

Resource:
Defining Instructional Approaches & Technologies

Media Categories	Short Description	Strengths	Weaknesses
Instructor-Led/Traditional Classroom Training (ILT)	The traditional instructional situation with learner and instructor present in both time and location.	• Interactive • Interpersonal • Short preparation • Content flexibility • Wide acceptance • Negligible technical requirements • Low development costs	• Small audiences • High travel costs • Requires time away from work • Not easily reused or leveraged • Content may be delivered inconsistently among audiences • Audience expected to progress at same rate • Limited contact time • Assessment requires manual or additional resources
Self-paced/Print-Based Materials (Print)	These are the traditional print-based correspondence courses enabling learners to proceed at their own pace.	• Broad audience • Self-paced • Negligible technical requirements • Low maintenance costs • Assessments normally included	• Not interactive • Considered dated by younger audiences • Not engaging • Considerable logistics and administration required • Requires additional resources to

Media Categories	Short Description	Strengths	Weaknesses
		• Reused as student reference • Consistent content delivery	accommodate visually impaired students
Synchronous e-Learning (Synch)	This includes audio and video teleconferencing and Web collaboration tools. Content is delivered by the instructor via e-Learning while students participate at the same time in various ways depending on the technology employed. This includes satellite delivery systems, audio and video conferencing, IP-based messaging (VoIP), and Web-based collaboration tools (e.g., Microsoft Live Meeting and Macromedia Breeze).	• Broad audience • Interactive • Interpersonal • Some assessment capability • Content flexibility • Wide acceptance • Reusable content	• Requires potentially extensive technical infrastructure for delivery • Requires technical conformance of end-users • Some logistics and administration required • Security and privacy concerns regarding connectivity
Web-Based Training (WBT)	Modular and complete instruction is delivered via Web connectivity over the Internet or corporate Intranet. WBT ranges from simple text-based files and applications to interactive multimedia instruction.	• Broad audience • Interactive • Self-paced • Automated assessment capability • Wide acceptance • Reusable content • Consistent content delivery	• Requires potentially extensive technical infrastructure for delivery • Requires technical conformance of end-users • Some logistics and administration required • Content development can be time consuming and expensive • Security and privacy concerns regarding connectivity
Computer-based Training (CBT)	Modular and complete instruction is delivered via CD-ROM and DVD.	• Broad audience • Interactive • Self-paced	• Requires technical conformance of end-users • Some logistics and

Media Categories	Short Description	Strengths	Weaknesses
		• Reusable content • Consistent content delivery • More secure than WBT or SEL.	administration required • Content development can be time consuming and expensive • Assessment information challenging to aggregate
Simulations & Games (SIM)	Goal-based, electronic environments intended to provide students with real-time practice and experience directly related and transferable to their actual performance environment. These systems can be single or multi-user, and can require standard or specialized computing platforms.	• Broad audience • Interactive • Self-paced • Reusable content • Consistent content delivery • Automated assessment capability • Wide acceptance	• Requires potentially extensive technical infrastructure for delivery • Content development can be very time consuming and expensive • Requires technical conformance of end-users
Performance Support (PS)	Information is delivered via job aids (either electronic or paper-based). These systems can be used both to support instruction or actual task performance. These tools are sometimes referred to as “Interactive Electronic Technical Manuals” and “e-Guides.”	• Broad audience • Self-paced • Reusable content • Consistent content delivery • Wide acceptance	• Does not provide complete, standalone instructional content • Content development can be time consuming and expensive • Some logistics and administration required

Resource:

Media Selection Analysis Tool

The purpose of this analysis tool is to help prospective G&T content developers with selecting the best media to use for their upcoming education and training. More specifically, this tool is intended to help guide developers in selecting among the growing number of new delivery technologies and approaches.

Performing the Evaluation

The Media Selection Matrix in the table below presents 15 questions to help identify the most appropriate media or blend or media for an upcoming content development. Please follow these steps in completing the evaluation:

1. The first 10 questions require a mutually exclusive (a) or (b) response. Please mark a check in the [Applies?] column for either (a) or (b). Even if your situation does not fall squarely into either alternative, please choose the answer that most closely applies.
2. For questions 11 through 15, please mark a check in the [Applies?] column only if the statement is true.

Considerations	ILT	Print	Synch	WBT	CBT	SIM	PS	Applies?
1a. The content development requirements and audience are well defined and understood	4	4	4	4	4	4	4	
1b. The content development requirements and audience are not well defined or understood.	0	-2	-3	-3	-3	-4	0	
2a. There is existing electronic content that will be used in the current content development effort.	2	2	2	3	3	3	3	
2b. No existing electronic content will be available for the current content development effort.	2	1	2	1	1	0	1	

Considerations	ILT	Print	Synch	WBT	CBT	SIM	PS	Applies?
3a. The content must be delivered in 6 months or less.	4	2	3	2	2	1	2	
3b. The content can be delivered later than 6 months.	4	4	4	3	3	3	3	
4a. The content must reach a large audience.	0	3	4	3	3	2	2	
4b. The content is intended for a small audience only.	4	1	4	1	1	2	1	
5a. The nature of the content is highly sensitive.	3	2	1	2	3	2	3	
5b. The nature of the content is not sensitive.	3	2	4	4	4	4	4	
6a. The nature of the content requires a high degree of interactivity with the student.	4	1	3	2	2	4	2	
6b. The nature of the content does not require a high degree of interactivity with the student.	2	3	2	3	3	1	3	
7a. The content will be delivered or tracked through a Learning Management System (LMS).	1	1	2	4	1	1	0	
7b. The content will not be delivered or tracked through an LMS.	3	3	3	2	3	3	3	
8a. The content will be developed using a Learning Content Management System (LCMS)	2	2	2	4	4	1	4	
8b. The content will not be developed using an LCMS.	4	3	4	3	3	4	3	
9a. Content reuse and sharing is an organizational priority.	1	1	2	4	3	1	3	
9b. Content reuse and sharing is not an organizational priority.	2	2	1	3	4	4	2	
10a. The audience is accepting of e-Learning.	2	1	4	4	3	4	3	
10b. The audience is reluctant to accept e-Learning.	4	3	-2	-2	-2	-2	0	
11. The content requires real-time interaction with the environment and other participants.	4	0	3	0	0	6	0	
12. The content must meet Section 508 accessibility requirements.	2	1	3	3	2	-2	3	
13. The content development effort is not well-funded.	-1	-2	-1	-2	-2	-4	0	

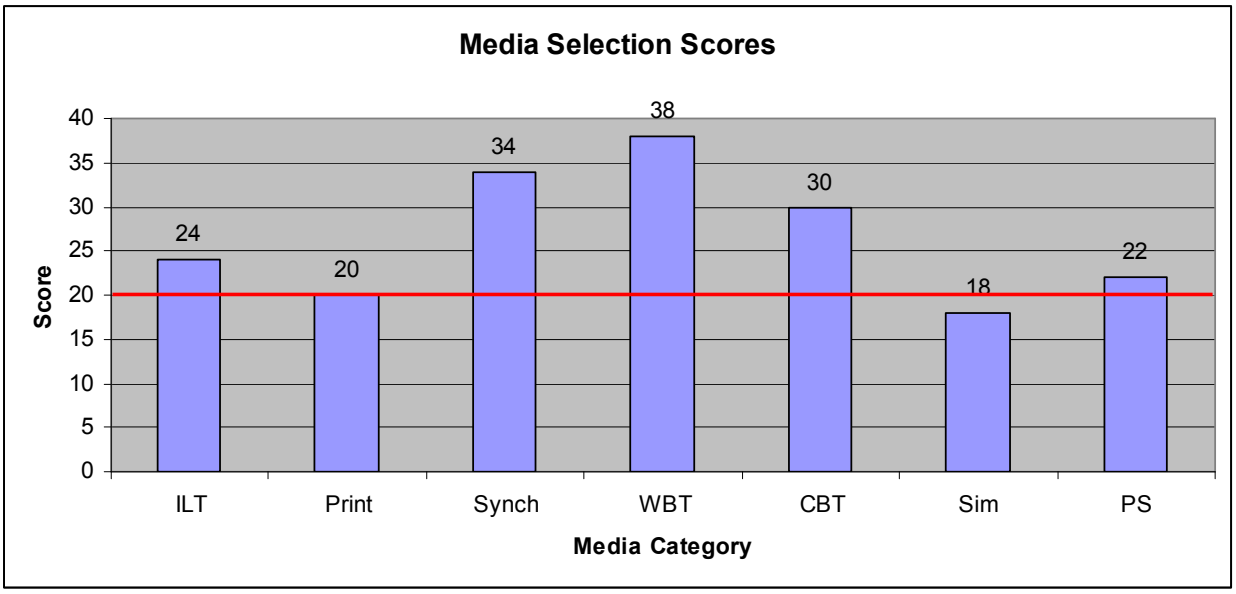
Considerations	ILT	Print	Synch	WBT	CBT	SIM	PS	Applies?
14. Assessment and performance measurement are critical aspects of the content.	2	3	3	4	2	4	0	
15. The organization may not have the necessary technical infrastructure to support content delivery.	0	0	-2	-2	0	-2	0	
Totals:								

3. Once completed, please strikethrough or line out any of the rows that do not apply (See example below):

9a. Content reuse and sharing is an organizational priority.	1	1	2	4	3	1	3	
~~**9b. Content reuse and sharing is not an organizational priority.**~~	~~2~~	~~2~~	~~1~~	~~3~~	~~4~~	~~4~~	~~2~~	

4. After striking out the rows that fail to apply, sum the values for each of the remaining columns (See example below)

Totals:	**24**	**20**	**34**	**38**	**30**	**18**	**22**	



Interpreting the Results

The figure above graphically illustrates the example results. While this tool greatly simplifies the analytic process, the results are intended to show your organization's *relative acceptance and potential success* profile in employing the various media for content delivery. Please consider the following in interpreting the results:

- The highest total score should indicate the media category most likely to succeed (i.e., meet the largest number of instructional goals) in your organization. For example, the WBT score of 38 in the figure above.
- As indicated by the horizontal red line, this evaluation uses a score of 20 as its success threshold. Scores of less than 20 for any media category are a strong indication that the effort may not be successful.
- In developing a Blended Solution, all categories above the threshold score of 20 are potential candidate media. Please note that each aspect of a Blended Solution does not need to be developed simultaneously. However, media categories with the highest scores should be given priority in the sequence of development.
- The weighting used in the Evaluation Matrix tends to favor e-Learning as described earlier in the document. If your organization stresses any particular aspect of the matrix more strongly for a specific reason, please feel free to add up to 6 points for any given question. Just be certain to add the same number of points across the entire row to maintain consistency among the media categories (as well as to the threshold value of 20).

Task 7: Review and Approval

Explanation If the Instructional Development Team is G&T-funded and developing a new course, the Planning/Analysis Form in the RTDC Library must be completed and provided to the G&T Program Manager for review and approval in order to continue development of the new course.

Organize Stage

Introduction

ORGANIZE is the second stage in the Responder Training Development Center (RTDC). The Organize stage includes the following phases of the Planning, Analysis, Design, Development, Implementation, and Evaluation (PADDIE) process:

- Phase 2: Design
- Phase 3: Development

During the ORGANIZE Stage, the following documents/courseware are required to be reviewed and approved by the Office of Grants and Training (G&T):

G&T

- Complete the Course Design Document Form and send it to the G&T Program Manager for review and approval to continue development of the course. The Course Design Document Form can be found in the RTDC Library.
- Complete the prototype and send it to the G&T Program Manager for review an approval.
- Complete Draft Course and send it to the G&T Program Manager for review and approval.

Non-G&T

There are no requirements for the non-G&T review and approval during the ORGANIZE stage. However, if the Instructional Development Team is non-G&T (State/Federal-sponsored) they are welcome to review the design and development processes, resources, and best practices.

Design Phase - WBT

Overview

During Phase 2: Design of the Planning, Analysis, Design, Development, Implementation, and Evaluation (PADDIE) process, the Instructional Development Team creates the blueprints for and plans the elements of the course. These elements include instructional objectives, assessment strategies, detailed content outlines, design documents, style guides, and storyboards to describe the presentation of content, practice activities, and feedback mechanisms.

The Design phase defines:

- What will be taught
- What will be measured
- How learning will be measured
- How the material will be delivered
- How the material will be taught
- How the instruction will be implemented
- How learner and instructional data will be collected and maintained

Designing instruction for Web-Based Training (WBT) is different from designing for Instructor-Led Training (ILT). There are steps for the online learning design process that are not required for ILTs, such as documenting the technical functionality or developing storyboards. Design activities may be applicable at different stages of a project.

The Design phase contains several pertinent steps that are dependent upon the delivery solution (e.g., WBT or ILT).

Note: Although the steps are provided in a sequential order, some steps may be conducted simultaneously or in another order if deemed necessary.

Tasks

The major tasks in the Design WBT phase include:

1.	**Write Learning Objectives**
2.	**Develop Content Outline**
3.	**Develop Design Strategy**
4.	**Develop Instructional Strategies**
5.	**Chart Course Flow**
6.	**Determine Assessment Strategy**

7.	Determine Evaluation Strategy
8.	Determine Look and Feel (G&T Style Guide)
9.	Document Technical Functionality (G&T Style Guide)
10.	Develop Course Design Document
11.	Review and Approval

Task 1: Write Learning Objectives

Explanation

During this task, instructional objectives are developed from the data collected and compiled during the Analysis phase. Objectives are detailed statements of what learners will be able to achieve or be able to demonstrate at the end of instruction. The Instructional Development Team should ensure objectives are measurable within the selected delivery medium. For example, while learners are able to discuss ideas in a classroom setting or collaborative online environment, they may not be able to do so in a WBT environment.

Specifically, objectives are detailed statements of what the learners will be able to achieve or be able to demonstrate as a result of completing a course; they are statements of learner behavior. They describe the result of the learning process rather than what or how the learner will be taught.

Every learning activity should be based on a defined set of instructional objectives. Objectives perform several key functions, they:

- Inform the learner of what is important and guide the learner through the material
- Provide a basis upon which the instruction is designed (much like a map)
- Provide a framework upon which to evaluate the success of the learning activity
- Stress the behavioral changes expected rather than attitudes or insights that cannot be measured

"Good" objectives are:

- clearly stated
- define or describe an action
- measurable, in terms of time, space, amount, and/or frequency

The Instructional Development Team must be careful to use objectives appropriately. Objectives are not a description of:

- Learning materials content
- What the instructor says or does
- A specific instructional experience

Rule of Thumb: The objectives build the content; the content does not build the objectives.

Objectives are often categorized according to the hierarchical level of the skills, behaviors, or tasks identified during the needs analysis. There are two commonly used levels of objectives:

- **Terminal Learning Objectives (TLO)**: TLOs are objectives that correspond to the overall instructional goals of the course. TLOs

describe what learners will be able to do at the end of the overall instructional course

- **Enabling Learning Objective (ELO)**: ELOs, also known as subordinate objectives, correspond to the skills that are required to accomplish the TLO. Specifically, they define the skills, knowledge, or behaviors that learners must master to successfully achieve the TLO.

Process

To develop objectives, the Instructional Development Team should:

- Use the task list developed during the Analysis phase.
- Analyze each task or knowledge item on the task list to determine the number of objectives for each item.
- Specify objectives for subtasks in addition to the task itself. This hierarchy of objectives will allow the most effective and efficient learning sequence to be developed.
- Document each objective in statement format. (Examples of objectives are provides below in this task)
- Analyze each objective to determine the skills, knowledge, and attitudes necessary to support the objective.
- Use the supporting skills, knowledge, and attitudes to develop sub-objective(s).
- Link any sub-objective(s) next to the objective they support.
- Develop all ELOs supporting a TLO before moving on to the next TLO.

Robert Mager wrote what some consider the manual for writing performance-based learning objectives. Mager proposed that objectives contain three elements.

- A **performance**: what the leaner should be able to do
- A **condition**: the conditions under which the performance is to occur
- A **criterion**: how well the performance must be done (accuracy)

The Performance

"Performance" indicates the observable behavior that a student (not teacher) will do to demonstrate that the lesson has been learned. The verb used must be an action verb that is measurable (observable). For example, the objectives may state "Upon completion of this lesson, the student will "define terms", or "list procedures", or "recognize a defect". All such behaviors are measurable. Sometimes it helps to consult a list of action verbs relating to performance.

Poorly written performance objectives indicate that the student will "learn" or "understand" or "become familiar with" the content of the lesson. An instructor cannot observe a student "understanding" content.

The Condition

Any equipment or material required in order for the student to be able to demonstrate the performance is listed here. If a thermometer is required in order for the student to demonstrate how to record a temperature, the condition would be, "Given a thermometer …". Other conditions might be "Using a compass …", or "In a darkroom …", etc. In some instances, there are no conditions for a specific performance. If this is the case, then no conditions need be stated.

Types of conditions include:

- **Aiding condition**: Any information or resource (e.g., technical orders, tools, equipment, and notes) that is provided to the learner to perform the behavior.
- **Limiting condition**: Any information or resource that is not made available to the learner.
- **Environmental condition**: The environment (e.g., weather, location, time of day, facilities) in which the learner must perform the behavior.

In some instances, there are no conditions for a specific performance. If this is the case, then no conditions need be stated.

The Criterion (Accuracy)

The minimum level of acceptable accuracy for the performance is listed in this area. Many times, this represents the minimum percentage of knowledge that needs to be demonstrated in order to pass the unit. However, it may also contain restrictions such as time frame, maximum errors, etc. Examples of the criterions are "to a 70% level of accuracy", or "within a 30 minute period", or "with no more than five misspellings". If this is omitted, the performance is assumed to be 100%. In such cases, the performance is pass/fail. In other words, if the student does not complete the performance perfectly, the student has not acceptably mastered the content.

Examples of Acceptable Performance Objectives

Condition	Performance	Criterion/Accuracy
Given a list of ten dollar values and terms…	the student will key compute the net present value…	with no more than two errors.
Given a thermometer…	the student will record the daily temperature for one week…	with 100% accuracy.
Using a compass…	the student will draw a circle…	within 1% of roundness.

How to Write Your Performance Objectives

Step 1. Describe the information, skills, behaviors, or perspectives participants in the session will acquire through attendance and participation.
Step 2. Clearly identify the outcomes or actions participants can expect to

demonstrate as a result of the educational experiences. Use this list of action verbs provided as a Resource below.

Step 3. Write the learning objectives that relate to these outcomes and that reflect the content of the session, making sure that each contains a performance, a criterion, and a condition, when applicable.

A good method for determining training objectives is to ask several questions focusing on the three parts of an objective. Answering questions such as these assists the Instructional Development Team with writing appropriate training objectives. For each task, the Instructional Development Team should ask the following questions:

- What should the learner be able to do if the training is to be successful? (**Performance**)
- How well should the learner be able to perform? (**Criterion**)
- What are the circumstances under which the learner should be able to perform?(**Conditions**)

Example:

Given a stethoscope and normal clinical environment, the medical student will be able to diagnose a heart arrhythmia in 90% of effected patients.

This example describes the observable behavior (identifying the arrhythmia), the conditions (given a stethoscope and a normal clinical environment), and the standard (90% accuracy).

Today, the performance objectives in most training programs ignore an indication of the conditions and standards. When these are omitted, it is assumed that the conditions involve normal workplace conditions, and standards are set at perfection. A written indication of the behavior using measurable or observable verbs, the most important criteria for a valuable objective, is always included.

According to Mager, vague verbs such as "understand”, "know”, or "learn about" should be replaced with more specific verbs. The list that follows provides some of the verbs appropriate for use with the statement "At the conclusion of this lesson you will be able to:"

- list
- identify
- state
- describe
- define
- solve
- compare and contrast
- operate

For an example of how behavioral objectives can be developed, let's assume that we are creating a training program for receptionists. The goal of the program is simply to train people in proper phone use. What might the specific tasks and associated learning objectives include?

An example of a poorly defined objective is:

In this course you will learn how to operate the phone and properly communicate with callers.

This statement is not an objective but a description of the course contents. Other examples of poorly written objectives are:

After completing this course you will be able to:

- operate your phone
- know how to greet callers
- understand the procedure for transferring a call

These objectives do not indicate observable behaviors, making assessment of their mastery impossible. How does one know if someone knows or understands something? What does it really mean to operate the phone?

The following performance objectives are good examples of the use of observable behaviors.

After completing this course you will be able to:

- place a caller on hold
- activate the speaker phone
- play new messages on the voice mail system
- list the three elements of a proper phone greeting
- transfer a call to a requested extension

These objectives are built around very discrete tasks. Instead of the vague objective to "operate the phone", the learner knows exactly what is expected for successful operation - namely, using the hold feature, speakerphone, and voice mail system. More importantly, these behaviors are observable. A student can be watched as he activates the speakerphone or listened to as she describes the elements of a good phone greeting. Because there is no ambiguity, learner expectancy is achieved and a proper evaluation can be made.

Resource:

Writing Objectives - The Mager Format

Robert Mager wrote what some consider the manual for writing performance-based learning objectives. In his book *Preparing Instructional Objectives: A Critical Tool in the Development of Effective Instruction* (1997), Mager outlines three important characteristics to include in all instructional objectives. They are:

1. **Performance**. An objective always states what a learner is expected to be able to do and/or produce to be considered competent.
2. **Conditions**. An objective describes the important conditions (if any) under which the performance is to occur.

3. **Criterion**. An objective describes the criteria of acceptable performance; that is, it says how well someone would have to perform to be considered competent.

Ultimately, the Mager format includes the learner's actions, the learning conditions, and the criteria for assessing the learner's performance. The following are examples of the Mager format:

Given a list of thirty five chemical elements (condition), the learner must be able to recall and write the valences (performance) of at least thirty (criterion).

Given a meter scale (condition), the learner is to be able to identify the value indicated by the position of the pointer (performance) as accurately as the construction of the meter will allow (criterion).

Additional Information: References

Preparing Instructional Objectives: A Critical Tool in the Development of Effective Instruction (1997), Mager

The APHA Guidelines for Effective Learning Objectives
http://apha.confex.com/apha/learningobjectives.htm

Mager's Tips on Instructional Objectives
http://www.gsu.edu/~mstmbs/CrsTools/Magerobj.html

Resource:

Objective Examples

Objective	Example
Knowledge-based	The Instructional Development Team will be able to identify the four types of project costs.
Skill-based	Given employee data, indirect labor cost rates, multiplier formulas, and a calculator, the Instructional Development Team will be able to calculate the estimated cost of a project with 100% accuracy.

Resource:

Verbs for Learning Outcomes

Note: Not all of the verbs listed in the following table are considered Web-friendly verbs.

Learning Outcome (Bloom's Taxonomy)	Description	Verbs
Knowledge	The recall of previously learned material (facts or theories) in essentially the same form taught.	• Acquire, Define, Describe, Detect • Identify, Label, List, Mark • Match, Name, Outline, Recall • Recognize, Reproduce, Select, State
Comprehension	Seeing relationships, concepts, and abstractions beyond the simple remembering of the material. Typically involves translating, interpreting, and estimating future trends.	• Compare, Contrast, Convert, Defend • Distinguish, Estimate, Explain, Extend • Generalize, Give Examples, Illustrate, Infer • Interpret, Paraphrase, Predict, Rephrase • Represent, Summarize, Transform, Translate
Application	The ability to use learned material in new and concrete situations, including the application of rules, methods, concepts, principles, laws, and theories.	• Administer, Change, Compute, Demonstrate • Develop, Differentiate, Discover, Employ

Learning Outcome (Bloom's Taxonomy)	Description	Verbs
		• Identify, Manipulate, Modify, Operate • Predict, Prepare, Produce, Relate • Restructure, Solve, Transfer, Use
Analysis	The ability to break down material into its component parts so the organizational structure may be understood, including identification of the parts, analysis of the relationships between parts, and recognition of the organizational principles involved.	• Break Down, Categorize, Classify, Deduce • Diagram, Differentiate, Discriminate, Distinguish • Identify, Illustrate, Outline, Plot • Point Out, Relate, Select, Separate
Synthesis	The ability to put parts together to form new patterns or structures, such as a unique communication (a theme or speech), a plan of operation (a research proposal), or a set of abstract relations (schemes for classifying information).	• Combine, Compile, Compose, Create • Derive, Design, Develop, Devise • Explain, Formulate, Generate, Modify • Organize, Produce, Rearrange, Reconstruct • Relate, Rewrite, Tell, Write
Evaluation	The ability to judge the value of material for a given purpose. Learning in this area is the highest in the cognitive hierarchy because it involves elements of all the other categories, plus	• Appraise, Assess, Conclude, Criticize • Decide, Describe, Interpret, Judge

Learning Outcome (Bloom's Taxonomy)	Description	Verbs
	conscious value judgments based on clearly defined criteria.	• Justify, Relate, Summarize, Validate

Resource:

Guidelines for Developing Objectives

Objective Components	Guidelines
Behavior	• Use the task list developed during the Analysis phase to document capabilities. • Ensure that the behavior statement is the same as that required on the job, if possible. • Use an active verb to describe the desired behavior or capability. • State the behavior in terms that everyone can identify and execute. • Avoid behaviors such as "know", "understand", etc. • Use (Web-friendly) behaviors that are: ▪ Observable ▪ Measurable ▪ Reliable ▪ Verifiable
Conditions	• Select conditions that match job conditions as closely as possible. • Ensure that conditions are realistic. • The condition can be described in many different ways, such as: • Materials and equipment needed • References needed or allowed (e.g., checklist) • Restrictions or limitations of performance • Physical environment • Simulation used

Objective Components	Guidelines
	• Assistance or supervision provided
Standards	Guidelines for developing objective standards include: • Use a standard that meets job performance requirements, if possible. • Use a standard that is clear and understood by everyone. • Use a standard that accurately measures learner achievement of the objective. • Ensure that the standard is: ▪ Complete ▪ Accurate ▪ Achievable
General	• Minimize requirements to memorize information, rather apply information. • Develop measurable and observable objectives that match closely with the types of learning identified. • Ensure that a verb precedes the rest of the statement to describe the behavior. • Whenever possible, develop performance objectives over knowledge objectives. This ensures instruction more closely replicates job performance.

Task 2: Develop the Course Structure/Content Outline

Explanation

The course structure/content outline allows the Instructional Development Team to break down the course into topics and sub-topics in an outline format. The Instructional Development Team can use the outline continuously throughout the design process, from a very simple, high-level outline to an extremely detailed one, increasing the detail as the process moves forward.

Outlines enable the Instructional Development Team to organize course details into the appropriate topics, ensuring that they have covered all gaps in the content.

The course structure/content outline organizes all course objectives into a hierarchy of objectives that correspond directly to the course taxonomy. It structures the content into a logical and sound course. This content narration is used as the foundation for design and, later, for development. The Instructional Development Team also uses this document to define the scope of the course to help ensure the project stays on schedule and within budget.

The course structure/content outline represents the content organization that establishes a content hierarchy, associates content with objectives, and compiles Government-Furnished Information (GFI), and corresponding instructional materials. The outline also presents the structure of instruction, describes how the content will be organized, and breaks it down by time.

The purpose of the course structure/content outline is to:

- Incorporate all content to be represented in the instruction.
- Detail objectives, modules, lessons, and topics.
- Identify a hierarchical list of all TLOs, associated ELOs, and a skill hierarchy to establish the instructional objectives.
- Serve as the foundation for the instructional design.

Process

When creating an outline, the Instructional Development Team should consider the following steps:

- Review objectives sequencing.
- Organize terminal objectives and their supporting enabling objectives into individual lessons. Review the list of sequenced objectives and chunk them into information deemed appropriate and manageable for a single lesson. One lesson should convey a block of information broken into discrete topics. If enabling objectives support the lesson, generally each topic will support an individual enabling objective.
- Select instructional objectives that are closely related; combined, they should make a self-contained group suitable for an

individual lesson.

- Combine instructional objectives so that the group has a natural beginning and ending point.
- Look for "natural breaks" in the sequenced objectives that indicate major changes in subject matter, for example: one topic to another, going from theory/knowledge to performance/skill, etc. Group instructional objectives by these "natural breaks" and organize them into individual lesson plans.
- Develop lesson content.
- Determine the objective.
- Research the topic defined by the objective.
- Choose the support material.
- Decide how to organize the lesson.
- Categorize things that comprise the instruction.
- List the associated activities.
- Continue this "pyramid building" until the desired level of detail is reached.
- Assign lesson titles that are meaningful and relate to the lesson content or purpose.

Resource:

Content Outline Components

The following components are included in a typical content outline:

- Introduction – provides an overview of the course, to include:
  - The course goal
  - A target audience description
  - A high-level view of the structure
- Modules – possibly the largest unit of instruction within a course, usually containing multiple TLOs and consisting of:
  - Module Introduction
  - Objectives
  - Lessons
  - Module Summary
- Lessons – a unit of instruction within a course containing one TLO and consisting of:
  - Lesson Introduction
  - Objectives
  - Topics
  - Content
  - Lesson Summary

Task 3: Determine the Design Strategy

Explanation

The design strategy is focused at the course level and provides an approach to organizing and presenting content based on the level of the objective. This strategy is necessary to maximize the transfer of learning from the instructional setting to the job. Selection of the design strategy must support the instructional objectives, learners' knowledge and ability level, and the overall instructional philosophy or concept.

The design strategy considers the following components:

- Learning taxonomy
- Structure
- Learning sequence
- Progression
- Learner pacing
- Learner participation/interactivity
- Content presentation
- Learner feedback
- Supplemental information

Process

The following elements should be considered during the course design strategy:

Learning Taxonomy

Establishing a logical, organized course structure is an important design strategy that supports learners completing the course without frustration or confusion. Dividing content into logical, manageable pieces establishes a content hierarchy, gives the learner a mental framework on which to build, and establishes a structure within which learning objectives are defined.

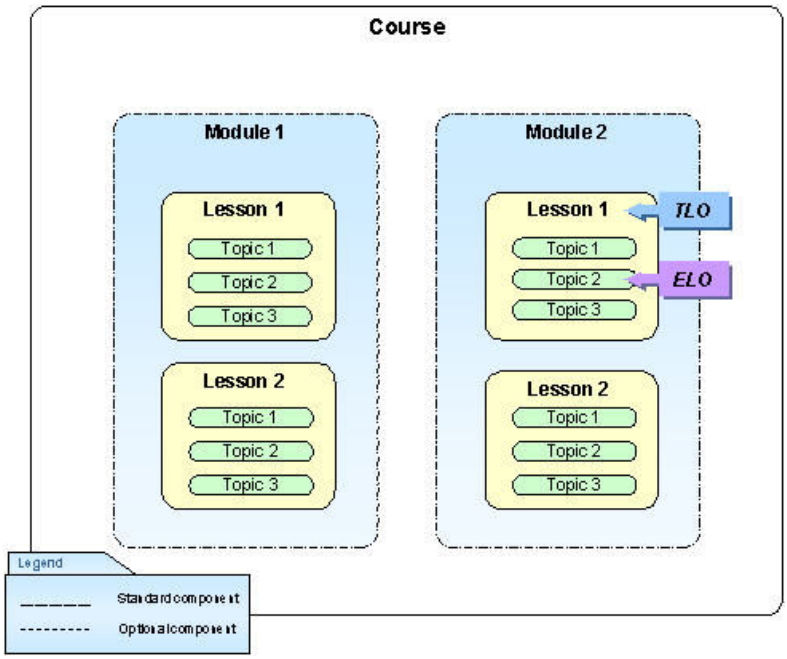
The course structure allows the Instructional Development Team to examine the particulars of how a course will be assembled and sequenced.

The G&T learning taxonomy serves as the foundation for course structure by establishing a relationship between different course components including modules lessons and topics. These components correspond to the learning objectives. There are three components:

- Course – Associated with one or more TLOs.
- Modules/Lessons – Associated with one or more ELOs. Both Modules and lessons can be used depending on the size of the course. A module can be a stand-alone unit of instruction.
- Topics – Associated with one ELO.

Note: See RTDC Glossary for further definition of

Course/Modules/Lessons/Topics.



G&T Learning Taxonomy

Course Structure

Establishing a logical course structure is an important design strategy. Content should be well-organized to ensure that learners are able to complete the instruction without frustration or confusion. Depending upon the size and complexity of the material, instruction may include a combination of the following:

- Modules
- Lessons
- Topics

Learning Sequence

Effective and efficient instruction depends on how well the information is sequenced. The following sequencing methods should be considered when determining the design strategy:

- **Proficiency advancement**: This technique is used to advance learners who have prior knowledge, practical experience, or are exceptionally fast learners. Learners show their proficiency by passing a criterion test and may bypass the instruction in which they have passed the criterion test.
- **Multiple tracks**: A sequence may be divided into various tracks to allow learners to go through instruction best suited to their abilities and needs. The best track for a learner is determined by

a pre-test.

- **Modular scheduling**: Instruction is divided into different modules and learners are pre-tested to determine which modules of instruction they need. Modular scheduling is normally used only when the learning sequence is not critical.

Participation

Active learner participation is essential for learning to take place. Learners learn by doing, thinking, and feeling through answering questions, discussing, manipulating, and putting ideas together. Learning is a process in which learners gain skills and knowledge and shape attitudes through their own activities, experiences, and motivations. The design strategy ensures that learners are active in the learning process and can apply or demonstrate what they have learned.

Interactivity

Interactivity is a powerful tool for WBT, used to support content and actively engage learners in the instructional process by providing opportunities for interaction with the instruction. The level of interactivity corresponds directly to the type of content that is presented and the degree of learner involvement required for instruction. The instructional strategy should include a discussion of interactivity strategy levels and interactive elements.

Learner interactivity elements should be incorporated into instruction to enable learners to interact with the instructional content. The following types of interactivity elements can be included:

- Glossary links
- Pop-ups
- Animations
- Practices
- Knowledge Checks

Content Presentation

Content presentation refers to the content organization and audio/visual elements that provide an engaging learning environment. The components of content presentation include:

- Audio/Visual
- Text

The Instructional Development Team may incorporate the following audio/visual elements as appropriate:

- Simple static graphics
- Complex static graphics
- Simple animations
- Complex animations
- Simple interactive graphics
- Complex interactive graphics

- Real-time simulations
- Embedded digital audio/video

Learner Feedback

Learners need feedback on how well they are doing. Feedback not only informs learners on their progress, but also serves as a valuable source of motivation.

Supplemental Information

The design strategy should describe any supplemental information that will be associated with the instruction, including:

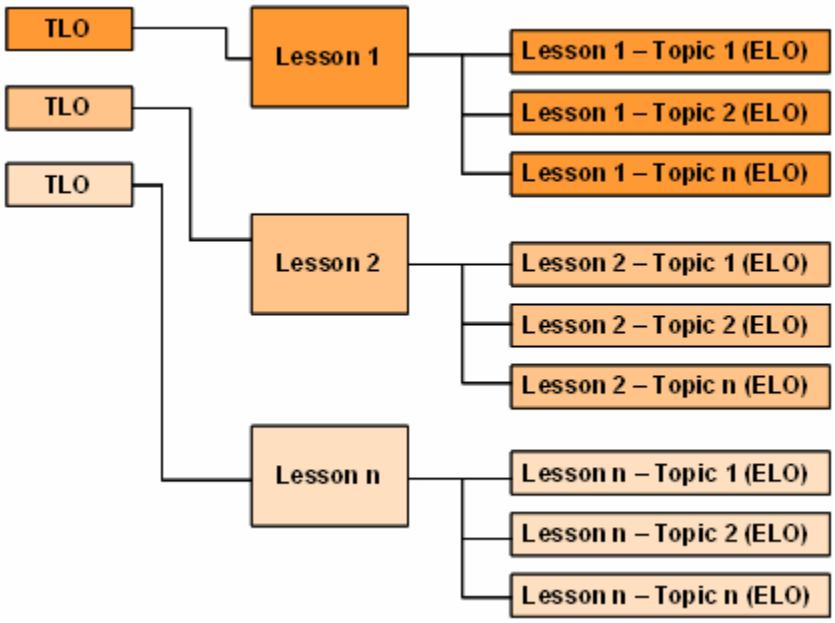
- Glossary materials
- Reference materials

Resource:

Learning Taxonomy Example

Please see the WBT G&T Style Guide for further specifications.

The example below illustrates how course content can be organized and structured.



Learning Taxonomy Example

Resource:

Interactivity Levels

Level	Description
Level I - Passive (Page Turner)	In Level I, the learner receives information. This level is used primarily to introduce knowledge, including ideas, concepts, and processes. Information is generally provided in a linear format (one idea after another). Minimal interactivity is incorporated in the form of text, navigational icons, static graphics (e.g., photos, charts, tables) and illustrations, learner-initiated animations, pop-ups and hyperlinks, and simple assessment questions.
Level II - Limited Interaction (can make limited choices)	In Level II, the learner recalls information and responds to instructional cues. This level is used to introduce simple operational and maintenance guidelines and procedures. Information can be presented in a linear manner, but the learner has some control over the presented material. Limited to moderate interactivity is incorporated in the form of learner-initiated animations, interactive graphics, activities, scenarios, and assessments (e.g., practices, knowledge checks, and tests).
Level III - Complex Participation	In Level III, the learner applies information to scenarios and interacts with simulations. This level is used to present more complex operational and maintenance procedures. Information is often non-linear and the learner has moderate control over the presented information. Moderate to high interactivity is incorporated in the form of complex interactive graphics including simulations and decision-based, branched scenarios.
Level IV- Real-time Participation	In Level IV, the learner engages in a life-like set of complex cues and responses. This level is used to simulate highly complex operational and maintenance procedures that often support certification. Maximum flexibility and multi-level branching allow a high degree of interactivity in the form of simulator and gaming environments.

Task 4: Develop Instructional Strategy

Explanation

An instructional strategy is an approach to delivering the course. An instructional strategy is focused at the lesson level and is used to deliver the instructional content and provide guidance for learners to retain the skills and knowledge imparted. Examples include tutorial, practice questions, knowledge checks, audio, and video. The selected methods will have a direct impact on both the qualities of the instructional program and its cost-effectiveness. Instructional strategies are the methods used to present instructional sequences at the lesson level. Four components required for effective instruction:

- Information presentation
- Learner guidance
- Practice with feedback
- Learning assessment

Whether at the course, module, or lesson level, these four components should be included for effective instruction to take place. Web-based media can be introduced to support any or all of these elements of effective instruction.

Process

The Instructional Development Team should consider the following elements when developing instructional strategies for WBT:

Objectives/Learning Outcomes

The instructional method selected should stimulate learning to enable mastery of the objectives. This can be done by selecting an instructional method that complements the behavior of the objective. For example, if the objective involves performance of a task, the instructional method should include some form of practical application, such as system simulation or role-based scenarios. Likewise, an objective requiring the learner to recall information may best be presented via a tutorial-based lesson.

Transfer of Learning

Transfer of learning is the extent to which instruction is carried over to the job. Learners learn best when they actively participate in instruction. When learners have minimal interaction, such as a tutorial, transfer of learning is low. Transfer of learning increases with learner involvement and interaction. Greater interaction with the presented material allows the learner to be actively involved, spurring retention and transfer of learning.

Instructional Strategies and Learning Objectives

For Web-based training, the Instructional Development Team should determine which instructional strategies will most effectively assist in transfer of learning, based on the stated learning objectives.

Web-based Training Approaches

The list of possible approaches for Web-based course components include:

- Tutorial (simple text and graphic presentation)
- Video presentation (demonstrations, lecture, introductory videos, case study, or scenario for practice questions)
- Audio (narration, case study)
- Synchronous and asynchronous communication and collaboration (chat rooms, message boards, team projects)
- Announcements (administrative news, new content)
- Private communication (e-mail between learners, learners and instructors/facilitators)
- Learning tasks and activities (individual tasks, collaborative tasks)
- Assignments (submission of materials)
- Resource materials and documents (local and external sites, archived learners projects, recommended reading, online glossaries)
- Frequently Asked Questions (FAQs)
- Course evaluation (online questionnaire, e-mail feedback)
- Simulation (system simulations)
- Tests and examinations (practice questions, knowledge checks)

Multiple approaches can, and should, be employed to effectively deliver training that meets the stated objectives for the lesson or other unit.

Web-based Instructional Strategy Considerations

When the Instructional Development Team are determining the instructional strategies a WBT, they should consider the following:

- A section that will gain learners' attention.
- A summary that places the lesson in the context of the information learners has already learned.
- A consistent presentation style and structure. The presentation should be clear and follow a style that is consistent with the material and divided into manageable segments.
- Whether there is a need for group work. Wherever possible, give learners a chance and the encouragement to cooperate.
- Is there a need for embedded questions? Create links to relevant content using statements that include answers to questions learners may want answered.
- Allow learners to practice the knowledge they have learned.
- Feedback is needed to identify problems learners are having in understanding and show them to learners and the educator.
- Reviewing the lesson is important to consolidate learners'

knowledge and to outline a context for the subject.

Learning Type	Instructional Method
Knowledge	Lecture, guided discussion, practical application, self-study, WBT, television, debate, interview, symposium, panel, group interview, colloquy, motion picture, slide film, recording, book-based discussion, reading.
Skills	Demonstration, practical application, WBT, role-playing, in-basket exercise, games, action mazes, participative cases, nonverbal skill practice exercises, drills, coaching.
Attitudes	Guided discussion, demonstration, WBT, television, lecture, debate, symposium, colloquy, motion picture, dramatization, guided discussion, experience-sharing discussion, role playing, critical incident, process, games.

Resource:

Instructional Strategies Example Table

Course design documents may include an Instructional Strategies table, similar to the following example, which detail the specific strategies to be used, as well as the interactivity levels.

Lesson No.	Lesson Name	Objectives	Interactivity Level	Instructional Strategy
2	Terrorist Weapons	Identify IED components Identify common terrorist weapons	Level II (Limited)	Tutorial Video Practice Questions Knowledge Check
3	Incident Management	Identify local, state, and federal agency roles Apply incident management strategies	Level III (Complex)	Tutorial Case Study Video Audio Practice Questions Knowledge Check

Task 5: Chart Course Progression

Explanation

Course flowcharts are structured diagrams of tasks and decisions within the course, along with outcomes.

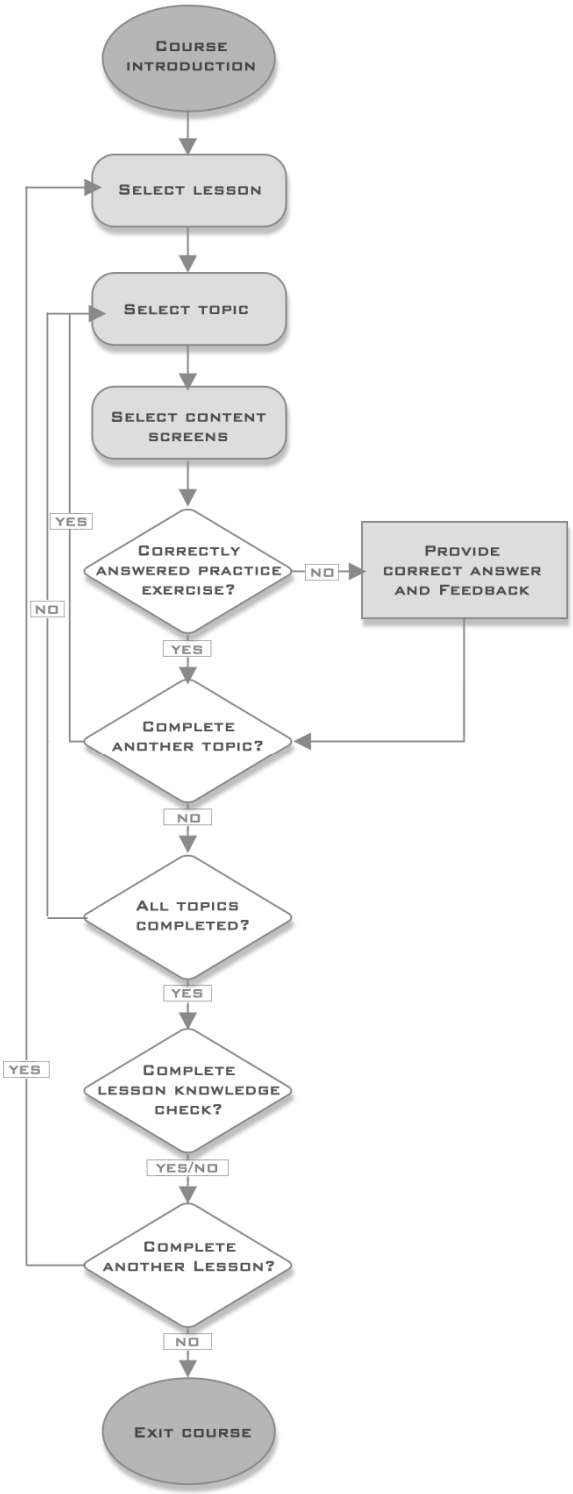
Course flowcharts provide a visual representation of the course's intended flow. They enable the Instructional Development Team to review and identify any issues in the course structure or design strategy. Progression describes how learners will move through the course and access applicable elements. The progression may be represented graphically or textually, including an explanation of:

- Sequencing options (e.g., test-out), if applicable
- Required progression (e.g., what must be completed before the next component can be accessed)
- Recommended progression
- Pre-/Post-tests
- Prescribed remediation, if needed

Resource:

Sample WBT Course Progression Diagram – Example

The course introduction should include the course purpose, overview, a description of the intended audience, and navigation instructions. Afterward, the learners can select modules/lessons sequentially to proceed through the course. After selecting a module/lesson, learners should complete all corresponding topics. Each topic should include content screens composed of content-specific and appropriate text, graphics, animations, pop-up information, practice exercises, and access to additional information (when necessary).


Course introduction
Select lesson
Select topic
Select content screens
Correctly answered practice exercise?
NO
Provide correct answer and Feedback
YES
YES
NO
Complete another topic?
NO
All topics completed?
YES
YES
Complete lesson knowledge check?
YES/NO
Complete another Lesson?
NO
Exit course

Task 6: Determine Assessment Strategy

Explanation

Assessment encompasses how the Instructional Development Team measures learner performance within the course. The assessment strategy defines the tools and practices the Instructional Development Team intends to use in formally measuring learner performance. The assessment strategy should take into consideration the target audience as well as the available technology.

Assessments are critical to maintaining or improving the effectiveness of instruction by determining if instructional objectives have been met and measuring proficiency against established standards. Learners are tested to determine what they know and what they need to learn. The results indicate learner progress, determine what learners find difficult, and can be used to tailor individual assignments to overcome the difficulties.

It is important to remember that assessments need to be reliable and valid. An assessment is considered reliable if it yields results that are consistent and stable (Chicago Board of Education, 2000). Consequently, an assessment is considered *valid* if it measures what it is intended to measure (Chicago Board of Education, 2000). Reliability is required for determining validity, but it is not the only consideration. Validity also depends upon testing appropriately to the objectives.

Possible assessment strategies include (but are not limited to):

- Pre-assessments
- Practice
- Knowledge reviews
- Lesson assessments

Test development has three major requirements:

- Good tests adequately measure the instructional objectives they support.
- The performance required in the test should match the performance required in the objective.
- Tests should be prepared after objectives are written to ensure that test items are closely related to objectives.

Tests also serve several secondary purposes, such as:

- Identifying problems or weaknesses in the instruction
- Indicating whether learners are performing up to standards on specific objectives
- Indicating the capability of course and the instructional medium to facilitate learning

Process

The Instructional Development Team should consider the following steps:

1. Determine Assessment Type

   The first step in developing the assessment strategy is to determine the assessment type. To ensure tests adequately measure objectives, the performance required in the test should match the performance required in the objective. Various types of tests can be used depending on the desired outcome.

2. Develop Assessments

   Tests should be composed of the behaviors, conditions, and standards referenced in the objectives. A comprehensive test will measure all of the intellectual and motor skills required to master each enabling and terminal objective behavior. One or more test items may be required to adequately measure each terminal and enabling objective behavior and the Instructional Development Team must ensure adequate coverage of the objectives. The difficulty, complexity, and scope of behavior in the objective will determine how many test items are required to support an objective.

Resource:

Knowledge Check/Exam –Format Examples

Note: These are just examples and not comprehensive (e.g., randomizing the responses).

Multiple Choice
Directions: Select the correct response for each question below.
1. A dog has _____ legs. a. Two b. Four c. Six d. Three
Matching
Directions: Select the lettered item from the right column that corresponds to the numbered item in the left column:

_____ _____ _____	1. Human 2. Human 3. Human	a. Eight b. Eight c. Eight

True or False
Directions: Select true if the statement is correct or false if the statement is incorrect.
1. A dog has six legs. True False 2. A human has four legs. True False

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Resource:

Written Assessment Item Guidelines

Assessment Item	Guidelines
Multiple choice	• Do not use the articles "a" and "an" at the end of the stem; this tends to indicate the correct answer. • All responses should follow grammatically from the stem. • All responses should be of approximately the same length. • All responses should have a similar grammatical structure. • All responses should use similar terminology. • Provide as many responses as necessary, but normally no less than three. • Position the correct response randomly throughout the test. • Limit the use of responses such as "none of the above" or "all of the above". • Ensure distracters are plausible, but incorrect. • Numerical responses should be arranged in ascending or descending order. • Ensure there is only one correct answer for multiple choice items.

Assessment Item	Guidelines
Multiple-Multiple Choice	• Provide clear direction for choosing the correct answer(s). • Use singular/plural verbs in the stem to prevent grammatical cues for the correct response. • Provide 4 or 5 responses.
True/False	• Include only one idea in each statement. • Place the crucial element at or near the end of the statement. • Avoid using negatives such as “no” or “not”, as they tend to confuse learners. • Avoid using absolutes such as "all”, "every”, "none”, and "never”. • Avoid vague terms such as "some”, "any”, and "generally”.
Matching	• Provide clear, concise directions on how to match the items in the two columns. • Indicate if the responses may be used more than once or not at all. • Limit test items to a single area and the choices to a single subject matter category. • Arrange the responses in the same logical order.
Fill in the Blank	• Leave blanks for key words only. • Keep items brief. • Make all blanks approximately the same size. • Avoid grammatical cues to the correct answer, such as articles like "a" or "an" just before the blank. • Ensure that only one correct answer fits each block.
Labeling	• Make all sketches, drawings, or illustrations clear and of sufficient size. If possible, use the actual parts of a unit. • Provide sufficient information to indicate what the equipment is, and which part is to be labeled. • Clearly label or identify parts using lines or

Assessment Item	Guidelines
	arrows. • Ensure that only one definite answer is possible.
Scenario	• Present a real-life situation that is applicable to the information previously presented. Avoid uncommon or unrealistic situations, as they will distract. • Ensure all follow-up questions relate to the scenario presented, and adhere to the previously defined question standards.

Resource:

Types of Learning and Assessment Items

Learning Type	Learning Outcome	Best Method of Testing	Activities That Indicate Achievement of Objectives
Knowledge	Discriminations	Multiple-choice and true/false	Detect similarities or differences
	Concrete Concepts/ Defined Concepts	Constructed response (labeling, sorting, matching)	Recognize examples or non-examples
	Rule Learning	Performance of integrated tasks or constructed response (short answer)	Apply rule, principle, or procedure Solve problems Produce a product
Skills		Performance Tests	Perform smooth, timely, coordinated action
Abilities		Performance Tests	Perform smooth timely, coordinated action.
Attitudes		Performance Tests	Display desired situated behavior

Resource:

Types of Assessments and Their Purpose

Type	Purpose
Readiness Pre-test	Used to measure prerequisite course entry skills
Placement Pre-test (Adaptive Pre-test)	Used to measure attainment of course or unit objectives
Diagnostic Pre-test	Used to determine attainment of supporting knowledge and skills (enabling objectives) necessary to master a terminal objective Used to search for a source of learning deficiencies, what the learner needs to learn, etc.
Survey Pre-test	Used to determine what prospective learners already know and can do before receiving instruction Used during development of instruction to gather data for design of instruction
Post-test	Used after exposure to an instructional program to provide a measure of the changes that have occurred during instruction
Appraisal	Used to informally assess retention and or comprehension to provide early identification of learners who need individual assistance

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Resource:

Assessment Item Review Checklist

Questions	Yes	No
Test Design and Construction		
Are the level of difficulty and types of questions consistent with the learning objectives being measured?	☐	☐
Is the objective tested properly in the assessment? (e.g., If the objective verb is “identify”, is there a method for the learner to identify?)	☐	☐

Questions	Yes	No
Have subject-matter experts reviewed the test items?	☐	☐
Has the test been tried out with a group of learners or others in a paper-and-pencil format?	☐	☐
Are the instructions on how to take the test clear?	☐	☐
Have test scores been compared with other performance measures (e.g., performance tests, supervisor ratings, etc.) to determine if they match?	☐	☐
Test Items in General		
Are test items worded clearly as possible?	☐	☐
Are clear and simple sentences used?	☐	☐
Is all of the information needed to make a correct response covered in the training?	☐	☐
Are irrelevant clues to the correct responses eliminated from the questions?	☐	☐
Would all subject-matter experts select the same correct response?	☐	☐
Does each item have only one correct answer?	☐	☐
Multiple-Choice Test Items		
Is a direct question or an incomplete statement used as the item stem?	☐	☐
Are negatively stated item stems avoided (e.g., “Which of the following statements is not true?”)?	☐	☐
Are all possible responses (distracters) plausible and attractive to learners?	☐	☐
Are all the responses written in as few words possible, with each one equal in length to the others?	☐	☐
Has the Instructional Development Team avoided using an observable pattern for correct responses?	☐	☐
Are the responses arranged in logical order (e.g., in a logical number or time sequence)?	☐	☐
Does “none of the above” or “all of the above” appear in all of the questions (if used at all)?	☐	☐

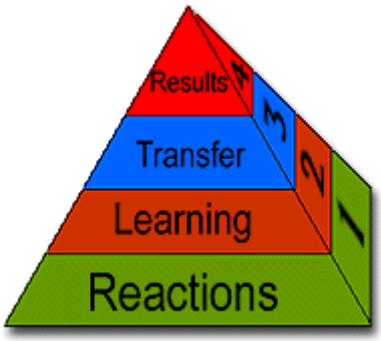
Questions	Yes	No
True/False Test Items		
Are statements true or false without having to be explained? (For example, does it stand-alone?)	☐	☐
Does the true/false decision require the learner to use the knowledge acquired?	☐	☐
Are negatively stated statements avoided?	☐	☐

Task 7: Develop the Evaluation Plan

Explanation

An evaluation strategy determines how to measure the effectiveness of the course. An industry-standard model for determining evaluation is Kirkpatrick's Four-Level Evaluation.

This model, which was developed by Donald Kirkpatrick, provides a model for building evaluations in levels of detail. The higher the level of evaluation, the more precise information the Instructional Development Team gets from the evaluation; however, higher evaluation levels are more difficult to accomplish and can consume valuable time and resources.



Level 1 – Reactions: Learners provide reactions and comments to the course, usually in the form of a questionnaire.

Level 2 – Learning: Assessments serve as a method of evaluation. For example, if everyone in a class fails an assessment, then that would indicate that something is wrong with the assessment, the course, or both.

Level 3 – Behavior Transfer: Learners have been able to transfer the knowledge, skills, or attitudes of the course to their work environment. This evaluation usually involves observation in the work environment.

Level 4 – Results: Change of knowledge, skills, or attitudes is witnessed by management level; does not necessarily imply return-on-investment.

All providers of G&T-approved training are responsible for administering Level 1 and Level 2 evaluations and tracking and reporting the results.

Please use the Level 1 Evaluation – Department of Homeland Security Office of G&T Learner Assessment of Course and Instructors in the RTDC Library.

The Level 2 evaluation is an objective measure of student knowledge, skills, and abilities acquired through training. Training providers are required to develop, administer, track, and report a Level 2 evaluation for each course they offer to the public. The instrument may be either a pre and post examination, or a post-course practical exercise for performance level courses that do not lend themselves to a pre-test. Tests or practical exercises must measure the individual, not the class as a whole. The Level 2 evaluation instrument must be submitted at the time that other course materials are submitted for the course review process. The instrument will be evaluated during the course review process based on its adherence to

instructional design principles for testing and to ensure that test questions or checklists (for post-course practical exercises) map to learning objectives and critical, “must-know” aspects of the course.

Process

The Evaluation Strategy can include (but is not limited to) the following:

- Purpose of the evaluation (i.e., Why is the Instructional Development Team conducting the evaluation?)
- Evaluation objectives (i.e., What will the Instructional Development Team accomplish by completing the evaluation?)
- Evaluations levels (Kirkpatrick) (i.e., Which levels will the Instructional Development Team use?)
- Participants (i.e., Who will provide the evaluation data?)
- Team (i.e., Who will create the evaluations and evaluate the data?)
- Data collection protocols (i.e., How will the Instructional Development Team collect the data?)
- Procedures for reporting findings (i.e., Who will the findings be reported to and how?)
- Roles and responsibilities

Resource:

Please see the Level 1 Evaluation – Department of Homeland Security Office of G&T Learner Assessment of Course and Instructors in the RTDC Library. This form is required for G&T-funded courses.

Resource:

Elements of an Evaluation Plan

Element	Description
Introduction	• Introduction to the document and overview of the process
Course Information	• Title • Description • Estimated length

Element	Description
Purpose	• Overall purpose for conducting the evaluation (e.g., content accuracy/adequacy, instructional effectiveness) • Key stakeholders (e.g., sponsors, SMEs) • Success criteria (e.g., percentage of improvement between pre-test and post-test scores)
Scope	• Scope of the evaluation (participant selection criteria, participants, job positions, evaluation locations, duration)
Evaluation Objectives	• Desired outcome (performance criteria, knowledge/skill transfer) • Nature of measures (quantitative versus qualitative) • Data to be collected to substantiate objective achievement (test questions answered correctly, time in lesson/course, learner feedback)
Evaluation Team	• Staff and responsibilities related to evaluation administration including: • Team leader/facilitator • Monitors and data recorders • The Instructional Development Team • Technical/systems specialists
Data Collection Protocols	• Data Sources (people, documents, databases) • Data collection strategies (interviews, focus groups, observations) • Data collection method(s) • Method(s) for recording results

Element	Description
Data Collection Instruments	• Instrument(s) to collect data (questionnaires, surveys, tests, forms, and instructions)
Resource Requirements	• Hardware, software, and connectivity • Books and manuals • Physical location(s) • Supplies • Special equipment
Schedule	• Overall timeframe • Activity dependencies
Milestones	• Interim work products and results • Final deliverables
Assumptions	• Determine dependencies or roadblocks
Appendix	• Data collection instruments

Task 8: Determine Look and Feel (Review G&T Style Guide)

Explanation

The purpose of the G&T Web-based Style Guide is to provide recommended WBT courseware design and development guidelines. The Style Guide provides generally accepted WBT best practices for navigation, learner interfaces, design and development processes/tools, and courseware development and delivery.

Establishing consistent style guidelines provides uniformity across multiple training partners' courses, ensuring clear guidance and high quality materials. The G&T Style Guide also increases course development efficiency by avoiding repeating the design, development, and evaluation of key courseware elements

Resource:

Please see the G&T Style Guide available in the Library section of the RTDC.

Task 9: Document Technical Functionality (Review G&T Style Guide)

Explanation

Please reference the G&T Style Guide available in the Library section of the RTDC.

Technical functionality defines the technology in the course, and how it will be used. Some technology functionality includes (but is not limited to):

- Use of audio
- Use of video
- Animations
- Development tools
- Pop-ups
- Section 508 Compliance

Task 10: Write the Course Design Document

Explanation

The purpose of the Course Design Document (CDD) is to create a roadmap to use throughout the course design and development process. The CDD finalizes the course goals, learning objectives, and establishes the course instructional and assessment strategies. The CDD also includes design and development standards and guidelines, as well as technical standards, for production and delivery appropriate for the selected training delivery solution.

Note: Some of the elements comprising tasks completed in the Design phase are included in the CDD.

Process

The following elements should be considered when writing the CDD:

- Course description
- Course structure/content outline
- Course design matrix
- Course progression
- Course seat time

Note: The CDD template is available in the Library section of the RTDC.

Course Description

The course description provides a detailed description of the course and typically includes:

- A short course overview that states the course purpose, overall outcomes to be achieved by the course, and the main course topics
- A statement concerning the course scope
- A description of the target audience
- A list of prerequisite courses or knowledge/skills required before taking the course
- The estimated amount of time required to complete this course
- The course materials, technology, or facilities required to deliver the course
- The testing strategy to include pre-/post-tests, certification, mastery requirements, final tests, and the required score/percentage for passing
- An overview of the formative and summative course evaluation strategy

Course Structure/Content Outline

Establishing a logical and organized structure is an important design strategy

that supports learners completing the course and eliminates frustration and confusion. By dividing content into logical and manageable pieces, a content hierarchy is established that gives the learner a mental framework on which to build. The G&T course structure consists of modules/lessons/topics. The information gathered during the Content Analysis is used to complete this section of the CDD. Please note that not every course contains lessons. A description of the G&T Course Structure/Learning Taxonomy can be found in the Design phase: Write Program of Instruction (ILT)/Design phase: Write Course Design Document.

Course Design Matrix

The course design matrix provides an overview of each proposed module/lesson within the course and includes objectives, lessons/topics, instructional strategy, evaluation strategy, and practical exercises. The course design matrix includes:

- A brief statement concerning the scope of the lesson
- A description of what learners will be able to do at the end of the module (TLO)
- The skills, knowledge, and behaviors that learners must master to successfully achieve the TLO (ELO)
- A list of lessons or topics
- An overview of how the content will be presented, to include how learners will interact with the content (e.g., tutorial, drill and practice, practical exercise, case study, etc.)
- Assessment descriptions (as necessary)
- Practical exercise descriptions

Note: Each module/lesson needs to have its own matrix.

Course Flow Diagram and Course Progression

A flow chart diagram visually depicts the recommended order for course progression.

Seat Time

Seat time pertains to the estimated amount of time the course will take learners to complete.

Graphical Specifications

Reference the specifications defined in the Style Guide, available in the Library section of the RTDC, for the template look and feel.

Functional Specifications

Functional specifications pertain to descriptions of the levels of interactivity to be used throughout the course.

Resource:

Please see the CDD form on the RTDC.

Resource:

Design Document Review Checklist (Yes=Complete/No=Not Complete)

I. Check Design Document for all Elements			
Document Elements	**Does the Design Document….**	**Yes**	**No**
Overview	State the purpose of the course?	☐	☐
	Describe the overall outcomes to be achieved by the course?	☐	☐
Target Audience	Describe the intended target audience for this course?	☐	☐
Prerequisites	List the prerequisite courses or knowledge/skills required before taking the course?	☐	☐
Testing/Certification	Describe the testing strategy to be used with the course, including answers to the following questions: • Will there be pre-test(s)? Will they be mandatory? • At what point(s) within the course will testing occur (e.g., at the beginning/end of the course, at the beginning/end of each lesson)? • Is there a required mastery level for passing the course/lessons? If so, what is the score? What happens to individuals who fail to demonstrate mastery? • How many times will the individual be allowed to retake tests?	☐	☐

I. Check Design Document for all Elements			
Document Elements	**Does the Design Document….**	**Yes**	**No**
Course Flow	Provide an overview of the design of the program, such as a diagram or flowchart	☐	☐
Lesson Designs	Provide the following information for each lesson within the course: • Lesson Title • Terminal Learning Objective(s) • Enabling Learning Objectives • Projected Lesson Length in Minutes • Content Outline of Key Topics • Recommended Instructional Strategies Incorporated within the Lesson (e.g., tutorial, drill and practice, simulation, game) • Media to be used within the Lesson (e.g., text, audio, video) • Flowchart with Branching Logic (only for complex lessons) **Note**: The lesson design template may be used.	☐	☐
Technical Specifications	Indicate anticipated delivery mode (e.g., Web-based, other)	☐	☐
	List any special technical requirements (e.g., specifications for delivery system)	☐	☐

II. Check the Objectives			
	Yes	**No**	**N/A**
Do the action statements contain observable terms?	☐	☐	☐
Do the TLOs contain the required three elements? • Behaviors	☐	☐	☐

II. Check the Objectives			
	Yes	No	N/A
• Standards • Conditions			
Do the ELOs support the TLOs' performance outcome?	☐	☐	☐
Has all unnecessary and vague wording been eliminated?	☐	☐	☐
Do the objectives provide an accurate picture of the task to be performed?	☐	☐	☐
Will the objectives describe the most important behaviors to be learned?	☐	☐	☐
If the objectives are achieved, will learners be able to…			
Perform the functions/tasks identified?	☐	☐	☐
Deal with the potential causes of the performance gap?	☐	☐	☐

III. Check the Instructional Approach			
	Yes	No	N/A
Does the instructional strategy support the objective?	☐	☐	☐
Does the instructional method support the objectives?	☐	☐	☐
Does the instructional strategy support the chosen environment?	☐	☐	☐
Do the instructional strategies provide a meaningful learning experience?	☐	☐	☐
Are the appropriate instructional strategies applied to the correct learning environment?	☐	☐	☐
Methods and Media	☐	☐	☐
Are the proposed interactions value added? (Will they support the objectives or are they "eye candy"?)	☐	☐	☐
Methods and Media			

III. Check the Instructional Approach			
	Yes	No	N/A
Will the proposed interactions engage the learner?	☐	☐	☐
Does the media mix support the objectives?	☐	☐	☐
Does the technical environment (e.g., learner's computer, network, or servers) support the proposed methods and media?	☐	☐	☐
Do the proposed methods and media fit with the budget constraints?	☐	☐	☐
Lesson Length			
Have the lessons been divided into small enough units to allow sufficient breaks for learners?	☐	☐	☐
Testing Strategy			
Does the testing strategy support the client's overall goals?	☐	☐	☐
Is the testing strategy feasible to implement from a technical standpoint?	☐	☐	☐
Has the testing strategy been negotiated with employee unions?	☐	☐	☐
Lesson Length			
Have the lessons been divided into small enough units to allow sufficient breaks for learners?	☐	☐	☐
Testing Strategy			
Does the testing strategy support the overall goals?	☐	☐	☐
Is the testing strategy feasible to implement from a technical standpoint?	☐	☐	☐

Task 11: Review and Approval

Explanation

If the course is G&T-funded, the Instructional Development Team is required to complete the Course Design Document Form found in the Library section of the RTDC. Please send this form to the G&T Program Manager for review and approval to continue development of the course.

Note: The CRA (Course Review Contractor) MAY be used to review the CDD at the direction/discretion of the Training Division Program Manager. This will not be a requirement for every course.

Design Phase - ILT

Overview

During Phase 2: Design of the Planning, Analysis, Design, Development, Implementation, and Evaluation (PADDIE) process, the Instructional Development Team creates the “blueprints” for the instructional experience and plans the elements of instruction. The Instructional Development Team uses products developed during the Planning and Analysis phases as input to develop the overall framework for instruction. This includes planning the elements of instruction to describe the presentation of content, practice activities, and feedback mechanisms. These elements include instructional objectives, assessment strategies, content outlines, design documents, and instructional evaluations. The design defines:

- What will be taught
- What will be measured
- How learning will be measured
- How the material will be delivered
- How the material will be taught
- How the instruction will be implemented
- How learner and instructional data will be collected and maintained

Designing instruction for Instructor-Led Training (ILT) is different from designing for Web-based Training (WBT) courses, as the tasks for ILTs vary from WBTs. The instructional strategies, course structure, and assessments may also vary. The ILT design process does not require documenting the technical functionality or developing storyboards. Design activities may be applicable at different stages of a project.

Note: Some of the elements comprising tasks completed in the Design phase are included in the Course Design Document (CDD).

Note: Although the steps are provided in a sequential order, some steps may be conducted simultaneous or in another order, if deemed necessary.

Tasks

The major tasks in the Design ILT phase include:

1.	**Write Learning Objectives**
2.	**Develop Content Outline**
3.	**Determine Design Strategy**
4.	**Develop Instructional Strategies**

5.	Determine Assessment Strategy
6.	Determine Evaluation Plan
7.	Determine Look and Feel (G&T Style Guide)
8.	Develop Course Design Document
9.	Review and Approval

Task 1: Write Learning Objectives

Explanation

During this task, instructional objectives are developed from the data collected and compiled during the Analysis phase. Objectives are detailed statements of what learners will be able to achieve or be able to demonstrate at the end of instruction. The Instructional Development Team should ensure objectives are measurable within the selected delivery medium. For example, while learners are able to discuss ideas in a classroom setting or collaborative online environment, they may not be able to do so in a WBT environment.

Specifically, objectives are detailed statements of what the learners will be able to achieve or be able to demonstrate as a result of completing a course; they are statements of learner behavior. They describe the result of the learning process rather than what or how the learner will be taught.

Every learning activity should be based on a defined set of instructional objectives. Objectives perform several key functions, they:

- Inform the learner of what's important and guide the learner through the material.
- Provide a basis upon which the instruction is designed (much like a map)
- Provide a framework upon which to evaluate the success of the learning activity
- Stress the behavioral changes expected rather than attitudes or insights that cannot be measured

"Good" objectives are:

- clearly stated
- define or describe an action
- measurable, in terms of time, space, amount, and/or frequency

The Instructional Development Team must be careful to use objectives appropriately. Objectives are not a description of:

- Learning materials content
- What the instructor says or does
- A specific instructional experience

Rule of thumb: The objectives build the content; the content does not build the objectives.

Objectives are often categorized according to the hierarchical level of the skills, behaviors, or tasks identified during the needs analysis. There are two commonly used levels of objectives:

- **Terminal Learning Objectives (TLO)**: TLOs are objectives that correspond to the overall instructional goals of the course. TLOs describe what learners will be able to do at the end of the overall

instructional course.

- **Enabling Learning Objective (ELO)**: ELOs, also known as subordinate objectives, correspond to the skills that are required to accomplish the TLO. Specifically, they define the skills, knowledge, or behaviors that learners must master to successfully achieve the TLO.

Process

To develop objectives, the Instructional Development Team should:

- Use the task list developed during the Analysis phase.
- Analyze each task or knowledge item on the task list to determine the number of objectives for each item.
- Specify objectives for subtasks in addition to the task itself. This hierarchy of objectives will allow the most effective and efficient learning sequence to be developed.
- Document each objective in statement format. (Objective examples are provided below.)
- Analyze each objective to determine the skills, knowledge, and attitudes necessary to support the objective.
- Use the supporting skills, knowledge, and attitudes to develop sub-objective(s).
- Link any sub-objective(s) next to the objective they support.
- Develop all enabling objectives supporting a TLO before moving on to the next TLO.

Robert Mager wrote what some consider the manual for writing performance-based learning objectives. Mager proposed that objectives contain three elements:

- A **performance**: what the leaner should be able to do
- A **condition**: the conditions under which the performance is to occur
- A **criterion**: how well the performance must be done (accuracy)

The Performance

"Performance" indicates the observable behavior that a student (not teacher) will do to demonstrate that the lesson has been learned. The verb used must be an action verb that is measurable (observable). For example, the objectives may state "Upon completion of this lesson, the student will ‘define terms’, ‘list procedures’, or ‘recognize a defect’". All such behaviors are measurable. Sometimes it helps to consult a list of action verbs relating to performance.

Poorly written performance objectives indicate that the student will "learn", "understand", or "become familiar with" the content of the lesson. An instructor cannot observe a student "understanding" content.

The Condition

Any equipment or material required in order for the student to be able to demonstrate the performance is listed here. If a thermometer is required in order for the student to demonstrate how to record a temperature, the condition would be, "Given a thermometer …". Other conditions might be "Using a compass …", or "In a darkroom …". In some instances, there are no conditions for a specific performance. If this is the case, then no conditions need be stated.

Types of conditions include:

- **Aiding condition**: Any information or resource (e.g., technical orders, tools, equipment, and notes) that is provided to the learner to perform the behavior.
- **Limiting condition**: Any information or resource that is not made available to the learner.
- **Environmental condition**: The environment (e.g., weather, location, time of day, facilities) in which the learner must perform the behavior.

In some instances, there are no conditions for a specific performance. If this is the case, then no conditions need be stated.

The Criterion (Accuracy)

The minimum level of acceptable accuracy for the performance is listed in this area. Many times, this represents the minimum percentage of knowledge that needs to be demonstrated in order to pass the unit. However, it may also contain restrictions such as time frame, maximum errors, etc. Examples of the criteria are "to a 70% level of accuracy", or "within a 30 minute period", or "with no more than five misspellings". If this is omitted, the performance is assumed to be 100%. In such cases, the performance is pass/fail. In other words, if the student does not complete the performance perfectly, the student has not acceptably mastered the content.

Examples of Acceptable Performance Objectives

Condition	Performance	Criterion/Accuracy
Given a list of ten dollar values and terms…	the student will key compute the net present value…	with no more than two errors.
Given a thermometer…	the student will record the daily temperature for one week…	with 100% accuracy.
Using a compass…	the student will draw a circle…	within 1% of roundness.

How to Write Your Performance Objectives

- **Step 1.** Describe the information, skills, behaviors, or

perspectives participants in the session will acquire through attendance and participation.

- **Step 2.** Clearly identify the outcomes or actions participants can expect to demonstrate as a result of the educational experiences. Use this list of action verbs provided as a Resource below.
- **Step 3.** Write the learning objectives that relate to these outcomes and that reflect the content of the session, making sure that each contains a performance, a criterion, and a condition, when applicable.

A good method for determining training objectives is to ask several questions focusing on the three parts of an objective. Answering questions such as these assists the Instructional Development Team with writing appropriate training objectives. For each task, the Instructional Development Team should ask the following questions:

- What should the learner be able to do if the training is to be successful? (**Performance**)
- How well should the learner be able to perform? (**Criterion**)
- What are the circumstances under which the learner should be able to perform?(**Conditions**)

Example:

Given a stethoscope and normal clinical environment, the medical student will be able to diagnose a heart arrhythmia in 90% of effected patients.

This example describes the observable behavior (identifying the arrhythmia), the conditions (given a stethoscope and a normal clinical environment), and the standard (90% accuracy).

Today, the performance objectives in most training programs ignore an indication of the conditions and standards. When these are omitted, it is assumed that the conditions involve normal workplace conditions, and standards are set at perfection. A written indication of the behavior using measurable or observable verbs (the most important criteria for a valuable objective), however, is always included.

According to Mager, vague verbs such as "understand”, "know”, or "learn about" should be replaced with more specific verbs. The list that follows provides some of the verbs appropriate for use with the statement "At the conclusion of this lesson you will be able to":

- list
- identify
- state
- describe
- define
- solve

- compare and contrast
- operate

For an example of how behavioral objectives can be developed, we will assume that we are creating a training program for receptionists. The goal of the program is simply to train people in proper phone use. What might the specific tasks and associated learning objectives include?

An example of a poorly defined objective is:

In this course you will learn how to operate the phone and properly communicate with callers.

This statement is not an objective, but a description of the course contents. Other examples of poorly written objectives are:

After completing this course, you will be able to:

- operate your phone
- know how to greet callers
- understand the procedure for transferring a call

These objectives do not indicate observable behaviors, making assessment of their mastery impossible. How does one know if someone knows or understands something? What does it really mean to operate the phone?

The following performance objectives are good examples of the use of observable behaviors.

After completing this course, you will be able to:

- place a caller on hold
- activate the speaker phone
- play new messages on the voice mail system
- list the three elements of a proper phone greeting
- transfer a call to a requested extension

These objectives are built around very discrete tasks. Instead of the vague objective to "operate the phone", the learner knows exactly what is expected for successful operation - namely, using the hold feature, speakerphone, and voice mail system. More importantly, these behaviors are observable. A student can be watched as he activates the speakerphone or listened to as she describes the elements of a good phone greeting. Because there is no ambiguity, learner expectancy is achieved and a proper evaluation can be made.

Resource:

Writing Objectives - The Mager Format

Robert Mager wrote what some consider the manual for writing performance-based learning objectives. In his book *Preparing Instructional Objectives: A*

Critical Tool in the Development of Effective Instruction (1997), Mager outlines three important characteristics to include in all instructional objectives. They are:

1. **Performance**. An objective always states what a learner is expected to be able to do and/or produce to be considered competent.
2. **Conditions**. An objective describes the important conditions (if any) under which the performance is to occur.
3. **Criterion**. An objective describes the criteria of acceptable performance; that is, it says how well someone would have to perform to be considered competent.

Ultimately, the Mager format includes the learner's actions, the learning conditions, and the criteria for assessing the learner's performance The following are examples of the Mager format:

Given a list of thirty-five chemical elements (condition), the learner must be able to recall and write the valences (performance) of at least thirty (criterion).

Given a meter scale (condition), the learner is to be able to identify the value indicated by the position of the pointer (performance) as accurately as the construction of the meter will allow (criterion).

Additional Information: References

Preparing Instructional Objectives: A Critical Tool in the Development of Effective Instruction (1997), Mager

The APHA Guidelines for Effective Learning Objectives
http://apha.confex.com/apha/learningobjectives.htm

Mager's Tips on Instructional Objectives
http://www.gsu.edu/~mstmbs/CrsTools/Magerobj.html

Resource:
Objective Examples

Learning Outcome (Bloom's Taxonomy)	Description	Verbs
Knowledge	The recall of previously learned material (facts or theories) in essentially the same form taught.	• Acquire, Define, Describe, Detect • Identify, Label, List, Mark • Match, Name, Outline, Recall • Recognize, Reproduce, Select, State
Comprehension	Seeing relationships, concepts, and abstractions beyond the simple remembering of the material. Typically involves translating, interpreting, and estimating future trends.	• Compare, Contrast, Convert, Defend • Distinguish, Estimate, Explain, Extend • Generalize, Give Examples, Illustrate, Infer • Interpret, Paraphrase, Predict, Rephrase • Represent, Summarize, Transform, Translate
Application	The ability to use learned material in new and concrete situations, including the application of rules, methods, concepts, principles, laws, and theories.	• Administer, Change, Compute, Demonstrate • Develop, Differentiate, Discover, Employ • Identify, Manipulate, Modify, Operate • Predict, Prepare, Produce, Relate • Restructure,

Learning Outcome (Bloom's Taxonomy)	Description	Verbs
		Solve, Transfer, Use
Analysis	The ability to break down material into its component parts so the organizational structure may be understood, including identification of the parts, analysis of the relationships between parts, and recognition of the organizational principles involved.	• Break Down, Categorize, Classify, Deduce • Diagram, Differentiate, Discriminate, Distinguish • Identify, Illustrate, Outline, Plot • Point Out, Relate, Select, Separate
Synthesis	The ability to put parts together to form new patterns or structures, such as a unique communication (a theme or speech), a plan of operation (a research proposal), or a set of abstract relations (schemes for classifying information).	• Combine, Compile, Compose, Create • Derive, Design, Develop, Devise • Explain, Formulate, Generate, Modify • Organize, Produce, Rearrange, Reconstruct • Relate, Rewrite, Tell, Write
Evaluation	The ability to judge the value of material for a given purpose. Learning in this area is the highest in the cognitive hierarchy because it involves elements of all the other categories, plus conscious value judgments based on clearly defined criteria.	• Appraise, Assess, Conclude, Criticize • Decide, Describe, Interpret, Judge • Justify, Relate, Summarize, Validate

Resource:
Guidelines for Developing Objectives

Objective Components	Guidelines
Behavior	• Use the task list developed during the Analysis phase to document capabilities. • Ensure that behavior statement is the same as that required on the job, if possible. • Use an active verb to describe the desired behavior or capability. • State the behavior in terms that everyone can identify and execute. • Avoid behaviors such as "know", "understand", etc. • Use behaviors that are: ▪ Observable ▪ Measurable ▪ Reliable ▪ Verifiable
Conditions	• Select conditions that match job conditions as closely as possible. • Ensure that conditions are realistic. • The condition can be described in many different ways, such as: ▪ Materials and equipment needed ▪ References needed or allowed (e.g., checklists) ▪ Restrictions or limitations of performance ▪ Physical environment ▪ Simulation used ▪ Assistance or supervision provided
Standards	Guidelines for developing objective standards include: • Use a standard that meets job performance requirements, if possible. • Use a standard that is clear and

Objective Components	Guidelines
	understood by everyone. • Use a standard that accurately measures learner achievement of the objective. • Ensure that the standard is: ▪ Complete ▪ Accurate ▪ Achievable
General	• Minimize requirements to memorize information, rather apply information. • Develop measurable and observable objectives that match closely with the types of learning identified. • Ensure that a verb precedes the rest of the statement to describe the behavior. • Whenever possible, develop performance objectives over knowledge objectives. This ensures instruction more closely replicates job performance.

Task 2: Develop the Course Structure/Content Outline

Explanation

The course structure/content outline enables the Instructional Development Team to break down the course into topics and sub-topics in an outline format. Outlines allow the Instructional Development Team to organize course details into the appropriate topics, ensuring that the Instructional Development Team has covered all gaps in the content.

The course structure/content outline organizes all course objectives into a hierarchy of objectives that correspond directly to the course taxonomy. It structures the content into a logical and sound course. This content narration is used as the foundation for design and, later, for development. The Instructional Development Team also uses the course structure/content outline to define the scope of the course in order to ensure the project stays on schedule and within budget.

The course structure/content outline represents the content organization which establishes a content hierarchy, and associates content with objectives and corresponding instructional materials. The outline presents the structure of instruction, describes how the content will be organized, and breaks it down by time.

The purpose of the course structure/content outline is to:

- Incorporate all content to be represented in the instruction.
- Detail objectives, modules, lessons, and topics.
- Identify a hierarchical list of all TLOs, associated ELOs, and a skill hierarchy to establish the instructional objectives.
- Serve as the foundation for the instructional design.

Process

When creating an outline, the Instructional Development Team should perform the following:

- Review objectives sequencing.
- Organize TLOs and their supporting ELOs into individual lesson plans. Review the list of sequenced objectives and chunk them into information deemed appropriate and manageable for a single lesson plan. One lesson should convey a block of information broken into discrete topics. If ELOs support the lesson, each topic will generally support an individual ELO.
- Select instructional objectives that are closely related; combined, they should make a self-contained group suitable for an individual lesson.
- Combine instructional objectives so that the group has a natural beginning and ending point.
- Look for "natural breaks" in the sequenced objectives that

indicate major changes in subject matter (e.g., one topic to another, going from theory/knowledge to performance/skill, etc.). Group instructional objectives by these "natural breaks" and organize them into individual lesson plans.

- Develop lesson content.
- Determine the objective.
- Research the topic defined by the objective.
- Choose the support material.
- Decide how to organize the lesson.
- Categorize things that comprise the instruction.
- List the associated activities.
- Continue this "pyramid-building" until the desired level of detail is reached.
- Assign lesson titles that are meaningful and relate to the lesson content or purpose.
- Estimate the instructional time required to present each lesson. Base this on learner throughput, and the complexity of the subject matter. Scheduled and unscheduled instructional time must be accounted for.
- Detail administrative functions, including processing, sleep, meals, transit, briefings, showers, etc., and the time required to complete these tasks.
- Add the hours of instruction and administrative time to determine totals for each.

Resource:

A course structure/content outline is typically composed of the following components:

- Introduction – provides an overview of the course, to include:
  - The course goal
  - A target audience description
  - A high-level view of the structure
- Modules – possibly the largest unit of instruction within a course usually containing multiple TLOs and consisting of:
  - Module Introduction
  - Objectives
  - Lessons
  - Module Summary
- Lessons – a unit of instruction within a course containing one TLO and consisting of:

- Lesson Introduction
- Objectives
- Topics
- Content
- Lesson Summary

Task 3: Determine the Course Design Strategies

Explanation

The design strategy provides an approach to organizing and presenting content based on the level of the objective. This strategy is necessary to maximize the transfer of learning from the instructional setting to the job. Selection of the design strategy must support the instructional objectives, learners' knowledge and ability level, and the overall instructional philosophy or concept.

The design strategy considers the following components:

- Learning taxonomy
- Structure
- Learning sequence
- Progression
- Learner pacing
- Learner participation/interactivity
- Content presentation
- Learner feedback
- Supplemental information

Process

The Instructional Development Team should consider the following elements during the course design strategy:

Learning Taxonomy

Establishing a logical, organized course structure is an important design strategy that supports learners completing the course without frustration or confusion. Dividing content into logical, manageable pieces establishes a content hierarchy, gives the learner a mental framework on which to build, and establishes a structure within which learning objectives are defined

This course structure allows the Instructional Development Team to examine the particulars of how a course will be assembled. The course structure can provide descriptions of the courses and how the courses will be sequenced.

The G&T Learning Taxonomy serves as a foundation for the course structure by establishing a relationship between different course components, including modules, lessons, and topics. These components correspond directly to the stated learning objectives. There are three components:

- **Course**: Associated with one or more TLOs.
- **Modules/Lessons**: Associated with one or more ELOs. (A course can have both modules and lesson depending on the length of the course. Modules can stand alone.)
- **Topics**: Associated with one ELO.

Note: See RTDC Glossary for further definition of Course/Modules/Lessons/Topics.

Course Structure

Establishing a logical course structure is an important design strategy. Content should be well-organized to ensure that learners are able to complete the instruction without frustration or confusion. Depending upon the size and complexity of the material, instruction may be composed of a combination of:

- Modules
- Lessons
- Topics

Learning Sequence

Effective and efficient instruction depends on how well the information is sequenced. The following sequencing methods should be considered when determining the design strategy:

- **Proficiency advancement**: This technique is used to advance learners who have prior knowledge, practical experience, or are exceptionally fast learners. Learners show their proficiency by passing a criterion test, and may bypass the instruction corresponding to the criterion test they passed.
- **Multiple tracks**: A sequence may be divided into various tracks to allow learners to go through instruction best suited to their abilities and needs. The best track for a learner is determined by a pre-test.
- **Modular scheduling**: Instruction is divided into different modules and learners are pre-tested to determine which modules of instruction they need. Modular scheduling is normally used only when the learning sequence is not critical

Participation

Active learner participation is essential for learning to take place. Learners learn by doing, thinking, and feeling through answering questions, having discussions, and manipulating and putting ideas together. Learning is a process in which learners gain skills and knowledge and shape attitudes through their own activities, experiences, and motivations. The design strategy ensures that learners are active in the learning process and can apply or demonstrate what they have learned.

Content Presentation

Content presentation refers to the organization of the content.

Learner Feedback

Learners need feedback on how well they are doing. Feedback not only informs learners on their progress, but also serves as a valuable source of motivation.

Supplemental Information

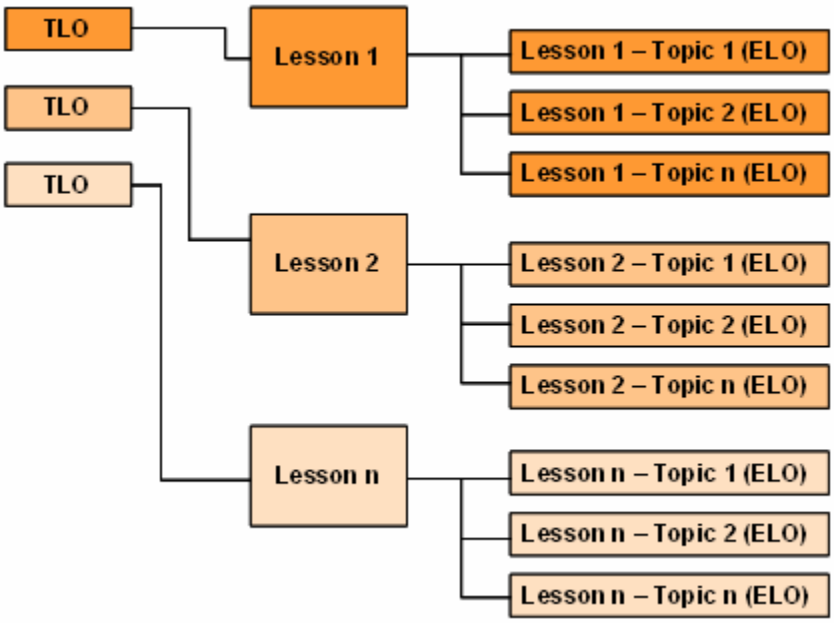
The design strategy should describe any supplemental information that will be associated with the instruction, including:

- Glossary materials
- Reference materials

Resource:

Learning Taxonomy Example

The example below graphically demonstrates how instructional materials can be organized and structured.



Learning Taxonomy Example

Task 4: Develop Instructional Strategy

Explanation

An instructional method is the process used to deliver the instructional content and to provide guidance for learners to retain the skills and information presented. Examples include lecture, demonstration, and self-study and video. The selected methods will have a direct impact on both the qualities of the course and its cost-effectiveness. When selecting an instructional method, a number of factors should be considered based on instructional requirements:

- Objectives/learning outcomes
- Transfer of learning
- Resource constraints

Process

The Instructional Development Team should consider the following when developing instructional strategies:

Objectives/Learning Outcomes

The instructional method selected should stimulate learning to enable mastery of the objectives. This can be done by selecting an instructional method that complements the behavior of the objective. For example, if the objective involves performance of a task, the instructional method should include some form of practical application. Likewise, an objective requiring the learner to recall information may best be presented via lecture.

Transfer of Learning

Transfer of learning is the extent to which instruction is carried over to the job. Instruction should strive to provide the most realistic job conditions possible in order to increase learner retention of the material and maximize transfer of learning. Learners learn best when they actively participate in instruction. When learners use limited interaction (e.g., lecture), transfer of learning is low. Transfer of learning increases as learners use additional senses, and is maximized when learners can experience performing a task.

Instructional Considerations

When selecting the instructional method, the following instructional issues should be considered:

- **Task criticality**: If task performance is critical, consider formal classroom instruction or On-the-Job Training (OJT). Self-study would be a questionable instructional method for teaching critical tasks.
- **Learning difficulty**: A task that is difficult to learn should be taught using the classroom or OJT method, or a part-task trainer may be appropriate.
- **Instructional fidelity**: If the instructional fidelity requirement is

high, consider selecting a method that uses the actual equipment to teach the process or procedures.

- **Interaction level**: If the learning process requires a great deal of interaction, OJT is probably the best, since it is highly interactive. If the group size is small, classroom instruction can provide moderate interaction. The Instructional Development Team may not want to use self-study if the learning process requires high interactivity.

Resource Constraints

The instructional method selected needs to be supported by available time, instructors, facilities, equipment, and funding. While resource constraints can become the deciding factor, the Instructional Development Team should first consider objectives and transfer of learning when selecting an instructional method. This will ensure every effort is made to base the selection on instructional factors.

Constraints include:

- **Funds**: Budgets are normally submitted and approved long before money is actually spent. Therefore, managers and the Instructional Development Team must determine what resources will be required for the instruction, including procurement of equipment, construction or modification of facilities, and personnel costs such as payroll or temporary duty (TDY) for instructors or learners.
- **Geographical distribution**: If the target population is widely spread, it may not be feasible to bring learners to a central location for instruction. If this is the case, classroom instruction may not be the appropriate instructional method. In this situation, the Instructional Development Team should consider other instructional methods, such as OJT or self-study.
- **Learner availability**: If there is an insufficient flow of learners due to lack of resource constraints, it is unlikely that classroom instruction will be appropriate. OJT or self-study may be a better solution. Also, the Instructional Development Team should consider using Computer-based Training (CBT) if there are large numbers of learners to be trained over a long period of time.
- **Personnel availability**: If instructors/trainers are not available, consider using other instructional methods such as self-study. Lead-time for additional personnel such as the Instructional Development Team, instructors, learner allocations, and maintenance support can be lengthy, since it involves budget and personnel authorizations. When requesting personnel such as the Instructional Development Team and instructors, a sufficient amount of time needs to be allotted in order to properly train them to do their assigned duties. The Instructional Development Team needs to also identify additional support

personnel such as typists and hardware fabricators, if applicable.

- **Facilities and equipment availability**: If there is a lack of adequate facilities and equipment to handle learner flow, consider OJT or self-study.
- **Development time**: Instructional methods such as CBT require considerable development time. If there is limited time or only a few learners to be trained, consider other instructional methods such as self-study or OJT.
- **Safety**: When performance of the objective could cause loss of life, bodily harm, or loss of equipment, consider other methods, such as CBT.

Selecting Instructional Methods

The table below describes the instructional methods best suited for desired learning outcomes.

Learning Type	Instructional Method
Knowledge	Lecture, guided discussion, practical application, self-study, WBT, television, debate, interview, symposium, panel, group interview, colloquy, motion picture, slide film, recording, book-based discussion, reading.
Skills	Demonstration, practical application, WBT, role-playing, in-basket exercise, games, action mazes, participative cases, non-verbal skill practice exercises, drills, coaching.
Attitudes	Guided discussion, demonstration, WBT, television, lecture, debate, symposium, colloquy, motion picture, dramatization, guided discussion, experience-sharing discussion, role playing, critical incident, process, games.

Resource:

Instructional Methods Comparison

Instructional Methods Comparison		
Lecture	Definition	• Discourse given before a class or an audience for instructional purposes without question (Formal) or interaction with the learners
	Advantages	• Useful if time is short

Instructional Methods Comparison		
		• Many ideas can be presented • Useful if number of instructors is limited • Useful where subject matter changes frequently
	Disadvantages	• Limits learner participation (e.g., Formal) • Lecture becomes a "telling session" for instructor • Checking learner learning before testing is difficult • Learner attention and interest may wander
	Appropriateness	• On-the-job instruction (Informal) • Formal course • Correspondence course (on video or audiotape) • Distance learning • Knowledge-building
Demonstration	Definition	• Accurate portrayal of the precise actions necessary to perform skills or processes. May be presented directly (classroom instructor) or indirectly (film, television)
	Advantages	• Useful in teaching motor skills, simple manual skills or processes • Sets standards of performance • Focuses attention upon basic procedures
	Disadvantages	• Demonstrator must be skilled performer • Since learner does not perform during demonstration, learner learning cannot be

Instructional Methods Comparison		
		evaluated except through questioning • Number of learner observations may be limited
	Appropriateness	• On-the-job instruction • Formal course • Knowledge and skill-building
Questioning	Definition	• Discourse by the learner before an instructor in which the learner relates what has been learned through previous study
	Advantages	• Useful for assessment of learning by instructor • Useful for providing feedback to learner • Useful for verbal content and concepts
	Disadvantages	• Learning for recitation may be rote • Participation of other learners not reciting is limited, and their attention and interest may wander
	Appropriateness	• On-the-job instruction • Formal course • Knowledge-building • Motivation
Guided Discussion	Definition	• Instructor-controlled interactive process of sharing information and experiences related to achieving a lesson objective
	Advantages	• Useful as an extension of existing knowledge or to clarify and amplify familiar material • Useful when learners must learn to identify and solve

Instructional Methods Comparison		
		problems and to frame their own decisions • Useful when learners need to be exposed to a variety of approaches, interpretations, and personalities • Useful when teamwork is needed
	Disadvantages	• Time-consuming and limited by class size • Requires that participants have sufficient background so that they can talk about subject
	Appropriateness	• On-the-job instruction • Formal course • Knowledge-building • Motivation
Performance	Definition	• Learner interacting with things, data, or persons, as necessary to attain objectives – includes all forms of simulations and interaction with actual equipment or materials
	Advantages	• Permits learner to apply learning to actual situations • Allows practice with job-similar conditions, under supervision and guidance
	Disadvantages	• Time-consuming because learners must be given the opportunity to practice until they reach proficiency • May require special facilities and equipment, which may be expensive and difficult to obtain (once obtained, equipment must be constantly maintained)

Instructional Methods Comparison		
	Appropriateness	• On-the-job instruction • Formal course • Skill-building
Self-Directed	Definition	• Readings or document research that learners undertake on their own, without special guidance or instruction
	Advantages	• Useful as an adjunct to other methods of instruction • Useful as an improvement to individual's present job performance • Useful to prepare an individual for a promotion • Allows a learner to pursue a special interest not shared by other learners
	Disadvantages	• Learner must be motivated and have initiative • Completion rates significantly lower • Learners object to lack of social interaction
	Appropriateness	• Correspondence course • Formal course • Knowledge and skill-building
Programmed Self-Instruction	Definition	• Instructional materials are prepared specifically to employ techniques of programming • Classical programmed instruction variables include "small steps" (carefully sequenced and cued to reduce error), immediate feedback, and freedom on the part of learners to vary their own rate of learning

Instructional Methods Comparison		
	Advantages	• Useful in accommodating individual differences in rate of learning, background, and experience • Useful if scheduling is a problem, as learners may work through materials when convenient • Provides uniformity of instruction • May be sole source of instruction or supplementary
	Disadvantages	• Development cost is comparatively high • Development time and revision time are comparatively long because of validation • Learners using programmed instruction object to lack of social interaction
	Appropriateness	• Correspondence course • Formal course • Knowledge and skill-building
Case Study	Definition	• A carefully designed description of a problem situation, written specifically to provoke systematic analysis and discussion
	Advantages	• Can extend existing knowledge • Promotes concept exploration and discussion • Useful when teamwork is needed
	Disadvantages	• Can become outdated quickly • Development time and revision time can be relatively long

Instructional Methods Comparison		
		• Can be time-consuming in a discussion format
	Appropriateness	• Formal course • Seminar
Games and Role-Playing	Definition	• Games: win/lose situations which dramatize certain principles • Role-playing: active process in which learners "act out" selected situations
	Advantages	• Learners can "practice" taking the responses to various situations that are similar to the real job • Active participation • Expansion or compression of real time • Allows focus on more subtle and less easily defined human relationships
	Disadvantages	• Learners may be inhibited about participating • Learners may become so involved in simulation that they fail to observe processes • Evaluation is difficult because behaviors affected by process are difficult to measure
	Appropriateness	• Formal course • Knowledge and skill-building • Motivation
Experiential	Definition	• Life experiences, (professional and personal) that provide context within which to internalize and assimilate new learning
	Advantages	• Gives learner a "vested

Instructional Methods Comparison		
		interest" in learning • Virtually guarantees learners will internalize new learning if it is tied to their previous experiences
	Disadvantages	• Not very effective for learners with little or no experiential base
	Appropriateness	• Formal course • Seminar

Task 5: Determine Assessment Strategy

Explanation

The assessment strategy defines how the Instructional Development Team measures learner performance within the course. The assessment strategy identifies the tools and practices the Instructional Development Team intends to use in formally measuring learner performance. The assessment strategy should reflect the target audience, as well as the available technology.

Assessments maintain or improve the effectiveness of instruction by determining if instructional objectives have been met and measuring proficiency against established standards. Learners are tested to determine what they know and what they need to learn. The results indicate learner progress, determine what learners find difficult, and can be used to tailor individual assignments to overcome the difficulties.

It is important to remember that assessments need to be *reliable* and *valid*. An assessment is considered *reliable* if it yields results that are consistent and stable (Chicago Board of Education, 2000). Consequently, an assessment is considered *valid* if it measures what it is intended to measure (Chicago Board of Education, 2000). Reliability is required for determining validity, but it is not the only consideration. Validity also depends upon testing appropriately to the objectives.

Possible assessment strategies include (but are not limited to):

- Pre-Assessments
- Practices
- Knowledge reviews
- Lesson assessments

Test development has three major requirements:

- Good tests adequately measure the instructional objectives they support.
- The performance required in the test should match the performance required by the objective.
- Tests should be prepared after objectives are written to ensure that test items are closely related to objectives.

Tests also serve several secondary purposes, such as:

- Identifying problems or weaknesses in the instruction.
- Indicating whether a class is performing up to standards on specific objectives.
- Indicating the capability of the instructor and the instructional medium to facilitate learning.

Process

The Instructional Development Team should consider the following steps:

1. Determine Assessment Type

   The first step in developing the assessment strategy is to determine the assessment type. To ensure tests adequately measure objectives, the performance required in the test should match the performance required in the objective. Various types of tests can be used, depending on the desired outcome.

2. Develop Assessments

   Tests should be composed of the behaviors, conditions, and standards referenced in the objectives. A comprehensive test will measure all of the intellectual and motor skills required to master each ELO and TLO behavior. One or more test items may be required to adequately measure each ELO and TLO behavior and the Instructional Development Team must ensure adequate coverage of the objectives. The difficulty, complexity, and scope of behavior in the objective will determine how many test items are required to support an objective.

3. Define Grading Structure

   Scoring must be consistent from learner to learner. The key principle to observe in scoring is objectivity. Objectivity is achieved by:

- Establishing clear and precise standards of performance, and teaching the test administrator to apply them, including:
  - Single correct answers for items measuring intellectual skills (except for multiple-multiple choice items).
  - Standards that indicate if a learner “did” or “did not” do a particular thing.
  - Standards that indicate if a product exhibits the presence or absence of essential attributes.
  - Standards that indicate if a procedure is performed within specific numerical parameters.
- Developing scoring procedures in which subjective judgment or opinion of the scorer is not a factor.
- Telling the test administrator exactly what should be observed while scoring.
- Defining successful performance so that measurements do not depend on personal judgments

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Resource:

Knowledge Check/Exam – Format Examples (These are just examples. Another option is to consider randomizing the distracters.)

Multiple Choice
Directions: Choose the correct response for each question below.

1. A dog has _____ legs.
    a. Two
    b. Four
    c. Six
    d. Three

Matching

Directions: Select the lettered item from the right column that corresponds to the numbered item in the left column:

_____	1. Human	a. Eight
_____	2. Human	b. Eight
_____	3. Human	c. Eight

True or False

Directions: Circle true if the statement is correct, or false if the statement is incorrect.

1. A dog has six legs.
   True False
2. A human has four legs.
   True False

Resource:

Written Assessment Item Guidelines

Assessment Item	Guidelines
Multiple choice	• Do not use the articles "a" and "an" at the end of the stem; this tends to indicate the correct answer. • All responses should follow grammatically from the stem. • All responses should be of approximately the same length. • All responses should have a similar grammatical structure. • All responses should use similar terminology. • Provide as many responses as necessary, but normally no less than three. • Position the correct response randomly

Assessment Item	Guidelines
	throughout the test. • Limit the use of responses such as "none of the above" or "all of the above". • Ensure distracters are plausible, but incorrect. • Numerical responses should be arranged in ascending or descending order. • Ensure there is only one correct answer for multiple choice items.
Multiple-Multiple Choice	• Provide clear direction for choosing the correct answer(s). • Use singular/plural verbs in the stem to prevent grammatical cues for the correct response. • Provide 4 or 5 responses.
True/False	• Include only one idea in each statement. • Place the crucial element at or near the end of the statement. • Avoid using negatives such as “no” or “not”, as they tend to confuse learners. • Avoid using absolutes such as "all”, "every”, "none”, and "never”. • Avoid vague terms such as "some”, "any”, and "generally”.
Matching	• Provide clear, concise directions on how to match the items in the two columns. • Indicate if the responses may be used more than once or not at all. • Limit test items to a single area and the choices to a single subject matter category. • Arrange the responses in the same logical order.
Fill in the Blank	• Leave blanks for key words only. • Keep items brief. • Make all blanks approximately the same size. • Avoid grammatical cues to the correct answer, such as articles like "a" or "an" just

Assessment Item	Guidelines
	before the blank. • Ensure that only one correct answer fits each block.
Labeling	• Make all sketches, drawings, or illustrations clear and of sufficient size. If possible, use the actual parts of a unit. • Provide sufficient information to indicate what the equipment is and which part is to be labeled. • Clearly label or identify parts using lines or arrows. • Ensure that only one definite answer is possible.
Scenario	• Present a real-life situation that is applicable to the information previously presented. Avoid uncommon or unrealistic situations, as they will distract. • Ensure all follow-up questions relate to the scenario presented and adhere to the previously defined question standards.
Essay	• State essay item clearly so learners know exactly what type of discussion is expected. • Ask for comparisons, decisions, solutions, cause-effect relationships, explanations, and summaries. • When possible, use more essay items and limit the discussion on each. • Set limits on essay questions, such as time or number of words. • Determine how the question will be scored for objective grading.

Resource:

Types of Learning and Assessment Items

Learning Type	Learning Outcome	Best Method of Testing	Activities That Indicate Achievement of Objectives
Knowledge	Discriminations	Multiple-choice and true/false	Detect similarities or differences
	Concrete Concepts/ Defined Concepts	Constructed response (labeling, sorting, matching)	Recognize examples or non-examples
	Rule Learning	Performance of integrated tasks or constructed response (short answer)	Apply rule, principle, or procedure Solve problems Produce a product
	Verbal Information	Constructed response (fill in the blank, essay questions, oral testing)	State information verbally or in writing
	Cognitive Strategies	Performance Tests Learner explains process to test administrator (Oral testing)	Self-report or audit trail of work done State strategies and tactics, and expected results of actions
Skills		Performance Tests Predictive oral tests to predict performance of motor skills	Perform smooth, timely coordinated action
Attitudes		Performance Tests Observe learner in different situations	Display desired situated behavior
Abilities		Performance Tests	Perform smooth, timely coordinated action

Resource:

Assessment Types and Their Purpose

Type	Purpose
Readiness Pre-test	• Used to measure prerequisite course entry skills
Placement Pre-test (Adaptive Pre-test)	• Used to measure attainment of course or unit objectives
Diagnostic Pre-test	• Used to determine attainment of supporting knowledge and skills (enabling objectives) necessary to master a terminal objective • Used to search for a source of learning deficiencies, what the learner needs to learn, etc.
Survey Pre-test	• Used to determine what prospective learners already know and can do before receiving instruction • Used during development of instruction to gather data for design of instruction
Post-test	• Used after exposure to an instructional program to provide a measure of the changes that have occurred during instruction
Appraisal	• Used to informally assess retention and/or comprehension to provide early identification of learners who need individual assistance

Resource:

Assessment Item Review Checklist

Questions	Yes	No
Test Design and Construction		
Are the level of difficulty and types of questions consistent with the learning objectives being measured?	☐	☐

Questions	Yes	No
Is the objective verb tested properly in the assessment? (e.g., If the objective verb is “describe”, is there a method for the learner to describe?)	☐	☐
Have subject matter experts reviewed the test items?	☐	☐
Have a group of learners or others taken the test in a paper-and-pencil format?	☐	☐
Are the instructions on how to take the test clear?	☐	☐
Have test scores been compared with other performance measures (e.g., performance tests, supervisor ratings, etc.) to determine if they match?	☐	☐
Test Items in General		
Are test items worded clearly as possible?	☐	☐
Are clear and simple sentences used?	☐	☐
Is the learner provided with the information needed to make a correct response presented during the training session?	☐	☐
Are irrelevant clues to the correct responses eliminated from the questions?	☐	☐
Would all subject matter experts select the same correct response?	☐	☐
Does each item have only one correct answer?	☐	☐
Multiple-Choice Test Items		
Is a direct question or an incomplete statement used as the item stem?	☐	☐
Are negatively stated item stems avoided? (e.g., Which of the following statements is not true?)	☐	☐
Are all possible responses (distracters) plausible and attractive to learners?	☐	☐
Are all the responses written in as few words as possible, with each one equal in length to the others?	☐	☐
Has the Instructional Development Team avoided using an observable pattern for correct responses?	☐	☐

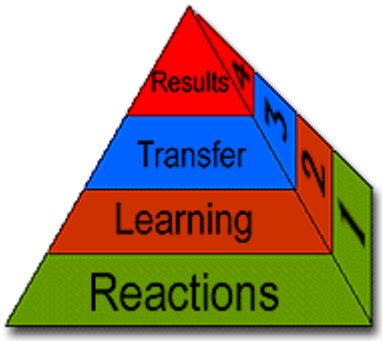
Questions	Yes	No
Are the responses arranged in logical order (e.g., in a logical number or time sequence)?	☐	☐
Does “none of the above” or “all of the above” appear in all of the questions (if used at all)?	☐	☐
True/False Test Items		
Are statements true or false without having to be explained? (For example, does it stand alone?)	☐	☐
Does the true/false decision require the learner to use the knowledge acquired?	☐	☐
Are negatively stated statements avoided?	☐	☐
Short-Answer Test Items		
Can the learner respond to short-answer questions with a unique word, phrase, number, or symbol?	☐	☐
Does the question include clear directions on how to answer?	☐	☐
Is there a consistent amount of space left for the learners to enter their responses?	☐	☐

Task 6: Develop an Evaluation Plan

Explanation

An evaluation strategy determines how to measure the effectiveness of the course. An industry-standard model for determining evaluation is Kirkpatrick's Four-Level Evaluation.

This model, which was developed by Donald Kirkpatrick, provides an outline for building evaluations in levels of detail. The higher the level of evaluation, the more precise information the Instructional Development Team gets from the evaluation; however, higher evaluation levels are more difficult to accomplish and can take up valuable time and resources.



Level 1 – Reactions: Learners provide reactions and comments to the course, usually in the form of a questionnaire.

Level 2 – Learning: Assessments serve as a method of evaluation. For example, if everyone in a class fails an assessment, then that would indicate that something is wrong with the assessment, the course, or both.

Level 3 – Behavior Transfer: Learners have been able to transfer the knowledge, skills, or attitudes of the course to their work environment. This evaluation usually involves observation in the work environment.

Level 4 – Results: Change of knowledge, skills, or attitudes is witnessed by management level; does not necessarily imply return-on-investment.

All providers of G&T-approved training are responsible for administering Level 1 and Level 2 evaluations and tracking and reporting the results.

Please use the Level 1 Evaluation – Department of Homeland Security Office of G&T Learner Assessment of Course and Instructors in the RTDC Library.

The Level 2 evaluation is an objective measure of student knowledge, skills, and abilities, acquired through training. Training providers are required to develop, administer, track, and report a Level 2 evaluation for each course they offer to the public. The instrument may be either a pre and post-examination, or a post-course practical exercise for performance level courses that do not lend themselves to a pre-test. Tests or practical exercises must measure the individual, not the class as a whole. The Level 2 evaluation instrument must be submitted at the time that other course materials are submitted for the course review process. The instrument will be evaluated during the course review process based on its adherence to

instructional design principles for testing. The evaluation will ensure that test questions or checklists (for post-course practical exercises) map to learning objectives and critical “must-know” aspects of the course.

Process

The evaluation strategy can include (but is not limited to) the following:

- Purpose of the evaluation – Why is the Instructional Development Team conducting the evaluation?
- Evaluation objectives – What will the Instructional Development Team accomplish by completing the evaluation?
- Evaluation levels (Kirkpatrick) – Which levels will the Instructional Development Team use?
- Participants – Who will provide the evaluation data?
- Team – Who will create the evaluations and evaluate the data?
- Data collection protocols – How will the Instructional Development Team collect the data?
- Procedures for reporting findings – Who will the findings be reported to and how?

Resource:

Please see the Level 1 Evaluation – Department of Homeland Security Office of G&T Learner Assessment of Course and Instructors in the RTDC Library. This form is required for G&T-sponsored courses

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Resource:

Evaluation Plan Job Aid

Evaluation Plan Job Aid
Purpose of the evaluation.
• Criteria to select size and composition of target population sample. • Criteria for site selection. • Methods for collecting information about student/target population sample participants. • Criteria for selection of instructors. • Methods for collecting information about instructor participants. • Methods for preparing facilities and equipment prior to conducting evaluation. • Methods for preparing students and instructors to participate in the evaluation. • Methods for test administration. • Methods for collecting student reactions to the training during the presentation. • Methods for observing presentation of training. • Methods for collecting student and instructor comments at the conclusion of training. • Methods for recording data. • Methods for conducting interviews. • Methods for participants to provide additional data for an extended period following completion of the actual evaluation. • Methods for determining test validity and reliability.
Procedures for data analysis as follows:
• Criteria for assessing performance. • Criteria and procedures for validating the evaluation. • Analytical treatment of data (e.g., statistical treatment). • Criteria and procedures for estimating criticality of deficiencies.
Procedures for reporting findings.
Procedures for reporting conclusions.
Procedures for reporting recommendations.
Data collection instruments (e.g., tests, checklists, structured interviews, questionnaires, and job performance indicators).
Schedule for data collection and performing the evaluation.
Resource requirements (e.g., personnel, materials, special equipment, travel funds, facilities).
Responsibility for testing and responsibility for conducting the evaluation.
Roles and responsibilities of all personnel involved (command, students, evaluators, graduates, and supervisors of graduates).
Identification of agencies and decision authorities who will receive the report.
Listing of proposed evaluation sites.
Scope of the evaluation (e.g., training objectives and critical standards).

Resource:

Elements of an Evaluation Plan

Element	Description
Introduction	• Introduction to the document and overview of the process
Course Information	• Title • Description • Estimated length
Purpose	• Overall purpose for conducting the evaluation (e.g., content accuracy/adequacy, instructional effectiveness) • Key stakeholders (e.g., sponsors, Subject Matter Experts (SMEs)) • Success criteria (e.g., percentage of improvement between pre-test and post-test scores)
Scope	• Scope of the evaluation (participant selection criteria, participants, job positions, evaluation locations, duration)
Evaluation Objectives	• Desired outcome (performance criteria, knowledge/skill transfer) • Nature of measures (quantitative vs. qualitative) • Data to be collected to substantiate objective achievement (test questions answered correctly, time in lesson/course, learner feedback)
Evaluation Team	• Staff and responsibilities related to evaluation administration including: ▪ Team leader/facilitator ▪ Monitors and data recorders ▪ The Instructional Development Team ▪ Technical/systems specialists

Element	Description
Data Collection Protocols	• Data Sources (people, documents, databases) • Data collection strategies (interviews, focus groups, observations) • Data collection method(s) • Method(s) for recording results
Data Collection Instruments	• Instrument to collect data (questionnaires, surveys, tests, forms, and instructions)
Resource Requirements	• Hardware, software, and connectivity • Books and manuals • Physical location(s) • Supplies • Special equipment
Schedule	• Overall timeframe • Activity dependencies
Milestones	• Interim work products and results • Final deliverables
Assumptions	• Determine dependencies or roadblocks
Appendix	• Data collection instruments

Task 7: Determine Look and Feel (Review G&T Style Guide)

Explanation

The purpose of the ILT portion of the G&T Style Guide is to provide the Instructional Development Team with the recommended design and development guidelines. The ILT Style Guide provides an overview of the Training Support Package (TSP), which contains the standard templates and recommended styles for developing ILT course materials.

Establishing consistent style guidelines provides uniformity across multiple training partners' courses, ensuring clear guidance and high-quality materials. The Style Guide also increases course development efficiency by avoiding the repetition of creating the design, development, and evaluation of key courseware elements.

Resource:

Reference the ILT section of the G&T Style Guide, which is available in the Library section of the RTDC.

Task 8: Write the Course Design Document

Explanation

The purpose of the CDD (previously referred to as the Plan of Instruction (POI)) is to serve as the blueprint for developing the ILT materials. It provides a skeleton of the course content, as well as documents that establish expectations. The CDD finalizes the course goals and learning objectives and establishes the course instructional and assessment strategies. The CDD also includes design and development standards and guidelines, as well as technical standards, for production and delivery appropriate for the selected training delivery solution.

Note: Some of the elements comprising tasks completed in the Design phase are included in the CDD.

Process

The CDD typically includes:

- Course description
- Course structure/content outline
- Course design matrix
- Course agenda

Note: The CDD template is available in the Library section of the RTDC.

Course Description

The course description provides a detailed description of the course and typically includes:

- A short course overview that states the course purpose, overall outcomes to be achieved by the course, and the main course topics
- A statement concerning the course scope
- A description of the target audience
- A list of prerequisite courses or knowledge/skills required before taking the course
- The estimated amount of time required to complete the course
- The course materials, technology, or facilities required to deliver the course
- The testing strategy to include pre-/post-tests, certification, mastery requirements, final tests, and the required score/percentage for passing
- A list of resources the instructor will need for developing the course
- An overview of the formative and summative course evaluation

strategy

Course Structure/Content Outline

Establishing a logical and organized structure is an important design strategy that supports learners completing the course and eliminates frustration and confusion. By dividing content into logical and manageable pieces, a content hierarchy is established that gives the learner a mental framework on which to build. The G&T course structure consists of modules/lessons/topics. The information gathered during the content analysis is used to complete this section of the CDD. Please note that not every course contains lessons. A description of the G&T Course Structure/Learning Taxonomy can be found in the Design phase: Write Program of Instruction (ILT)/Design phase: Write Course Design Document.

Course Design Matrix

The course design matrix provides an overview of each proposed module/lesson within the course and includes objectives, lessons/topics, instructional strategy, evaluation strategy, and practical exercises. The course design matrix includes:

- A brief statement concerning the scope of the lesson
- A description of what learners will be able to do at the end of the module (TLO)
- The skills, knowledge, and behaviors that learners must master to successfully achieve the TLO (ELO)
- A list of lessons or topics
- An overview of how the content will be presented, to include how learners will interact with the content (e.g., lecture, drill and practice, practical exercise, case studies etc.)
- Assessment descriptions (as necessary)
- Practical exercise descriptions

Note: Each module/lesson needs to have its own matrix.

Course Agenda

The ILT course agenda provides an account of what will be covered on what day. The captured information includes the day on which a given module/lesson will be covered, the module/lesson title, and the length of time required to complete the module/lesson (in hours/minutes).

Resource:

Please see the ILT Course Design Document form available in the Library section of the RTDC. This form is a requirement for G&T-funded courses.

Resource:

Design Document Review Checklist (Yes = Completed/No = Not Completed)

Check Design Document for all Elements			
Document Elements	**Does the Design Document**	**Yes**	**No**
Overview	State the purpose of the course?	☐	☐
	Describe the overall outcomes to be achieved by the course?	☐	☐
Target Audience	Describe the intended target audience for this course?	☐	☐
Prerequisites	List the prerequisite courses or knowledge/skills required before taking the course?	☐	☐
Testing/Certification	Describe the testing strategy to be used with the course, including answers to the following questions: • Will there be a pre-test(s)? Will it/they be mandatory? • At what point(s) within the course will testing occur (e.g., at the beginning/end of the course, at the beginning/end of each lesson)? • Is there a required mastery level for passing the course/lessons? If so, what is the score? What happens to individuals who fail to demonstrate mastery? • How many times will the individual be allowed to retake tests?	☐	☐
Course Map	Provide a course overview, such as a diagram or flowchart	☐	☐
Lesson Designs	Provide the following information for each lesson within the course: • Lesson title	☐	☐

Check Design Document for all Elements			
Document Elements	**Does the Design Document**	**Yes**	**No**
	• Terminal Learning Objective(s) (TLOs) • Enabling Learning Objectives (ELOs) • Projected lesson length in minutes • Content outline of key topics • Recommended instructional strategies incorporated • Within the lesson (e.g., lecture, drill and practice, role-play, video, etc.) • Media to be used within the lesson (e.g., audio, video) • Flowchart with branching logic (only for complex lessons)		

Check the Objectives			
	Yes	**No**	**N/A**
Do the action statements contain observable terms?	☐	☐	☐
Do the Terminal Learning Objectives (TLOs) contain the required three elements: – Behaviors – Standards – Conditions	☐	☐	☐
Are the standards of performance stated in observable and measurable terms?	☐	☐	☐
Has all unnecessary and vague wording been eliminated?	☐	☐	☐
Do the objectives provide an accurate picture of the task to be performed?	☐	☐	☐
Will the objectives describe the most important behaviors to be learned?	☐	☐	☐
If the objectives are achieved, will learners be able to:			

Check the Objectives			
	Yes	No	N/A
Perform the functions/tasks identified?	☐	☐	☐
Deal with the potential causes of the performance gap?	☐	☐	☐

Check the Instructional Approach			
	Yes	No	N/A
Does the instructional strategy support the objectives?	☐	☐	☐
Does the instructional method support the objectives?	☐	☐	☐
Does the instructional strategy support the chosen environment?	☐	☐	☐
Do the instructional strategies provide a meaningful learning experience?	☐	☐	☐
Are the appropriate instructional strategies applied to the correct learning environment?	☐	☐	☐
Methods and Media			
Will the proposed interactions engage the learner?	☐	☐	☐
Does the media mix support the objectives?	☐	☐	☐
Does the technical environment (e.g., learner's computer, network, or servers) support the proposed methods and media?	☐	☐	☐
Do the proposed methods and media fit within the budget constraints?	☐	☐	☐
Lesson Length			
Are the lessons "chunked" properly to allow sufficient breaks for learners?	☐	☐	☐
Testing Strategy			
Does the testing strategy support the client's overall goals?	☐	☐	☐
Is the testing strategy feasible to implement from a technical standpoint?	☐	☐	☐

Check the Instructional Approach			
	Yes	No	N/A
Has the testing strategy been negotiated with employee unions?	☐	☐	☐

Task 9: Review and Approval

Explanation

If the course is G&T-funded, the Instructional Development Team is required to complete the ILT Course Design Document Form found in the Library section of the RTDC. Please send this form to the G&T Program Manager for review and approval to continue development of the course.

Resource:

Please see the Course Design form in the RTDC Library.

Development Phase - WBT

Overview

Phase 3: Development is the phase where planning and design start to take the form of a course.

Tasks

The major tasks in the Development Web-based Training (WBT) phase include:

1.	**Develop Prototype**
2.	**Submit Prototype**
3.	**Develop Draft Course**
4.	**Submit Draft Course**

Task 1: Develop Prototype

Explanation

The prototype is the first task in the Development phase. Submitting a fully functioning lesson as a prototype enables the Office of Grants and Training (G&T) to ensure the course is being developed to the approved course design standards.

The goal of a prototype is to demonstrate the following:

- A complete and functional interface
- Global instructional strategies such as themes, metaphors, or case studies
- Representative audio/visual strategies, including audio/visual materials
- Learner progression through a series of Shareable Content Objects (SCOs) (either sequentially or randomly)
- Assessment and remediation functionality

Note: An SCO is a self-contained package of knowledge objects (i.e., graphics, text, etc.) that can be tracked electronically by a Learning Management System (LMS). The G&T Style Guide provides guidance on SCOs.

For the WBT course prototype, one completed lesson of the course needs to be developed. It is recommended that the lesson chosen for the prototype be one that is most representative of the entire course (i.e., select the lesson containing different types of interactivity, incorporates discussion boards, online chat, other collaboration tools, or practice exercises).

The prototype serves as a “proof of concept” or representative sample of the program that is delivered for review. Providing a fully functioning prototype for review enables stakeholders to determine early in the production process whether the proposed product meets their expectations. Developing a prototype is especially useful when a course is lengthy, only part of an existing course has been revised, or when a segment of the instruction is particularly risky and requires advance feedback. This reduces the risk of complete re-work by producing at least one representative module of instruction for review before the whole course or instruction is produced.

Although building an early prototype will not eliminate all design flaws, it will help minimize risk. It is both easier and less costly to make design changes at this point than it will be once the entire course is developed.

Process

The WBT prototype step includes:

1. Validate Templates per the Course Design Document (CDD)

   The Instructional Development Team begins the prototype by validating the templates (i.e., the “header” and “footer” sections of the

screen, the relevant template code, general structure, etc.) to the requirements and design standards established in the CDD as well as current storyboards. The Instructional Development Team may need to make some modifications to the templates in order to accommodate the course requirements and/or content in the storyboards.

Note: The templates are provided in the Library section of the Responder Training Development Center (RTDC).

2. Create Screen Templates

   After the Instructional Development Team has validated the templates, the next step is to create the screen templates. These templates apply to the content area between the “header” and “footer” sections of the screen. The course content requirements, as defined in the CDD, will assist the Instructional Development Team with the types of screen templates that need developed. Considerations should also be made for SCORM (Sharable Content Object Reference Model) and Section 508 requirements. With respect to SCORM, functionality should be implemented for the run-time environment and the time for creating the course manifest should be factored. Finally, screen templates should be tested for Section 508 compliance before specific content screens are created in order to minimize and prevent re-work.

Note: The Sharable Content Object Reference Model (SCORM) developed and sponsored by the Advanced Distributed Learning (ADL) initiative, is a set of interrelated technical specifications built upon the work of the AICC, IMS, IEEE and others to create one unified "reference model”. These specifications and guidelines have been integrated and adapted within the SCORM to meet Department of Defense (DoD) high-level requirements of accessibility, interoperability, durability, and reusability of Web-based learning content and systems. The main focus of the SCORM at this time is the interoperability of learning content with learning management systems, and consists of three main components. Please see the G&T Style Guide for more information.

3. Write the Storyboards

   An accurate content outline, CDD, and the proper application of the G&T Style Guide are critical to the success of developing complete and accurate storyboards.

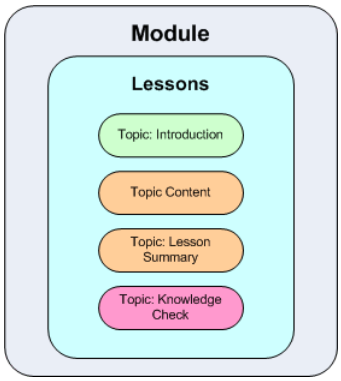
   Storyboards are the blueprints of the Web-based course design and development process. Storyboards provide a textual and visual description of content, graphics, animations, and other media elements that communicate all of the necessary information about the course content and how it should display. This format enables the Instructional Development Team to plan, organize, and sequence visual instruction for the WBT. The information provided should coordinate the textual content with associated visuals, show the

sequencing of visual information, and provide directions for production and programming. The information and descriptions provide a baseline from which the Instructional Development Team reduces or eliminates assumptions, questions, or confusion about the course.

When designing a WBT, the Instructional Development Team should do the following:

- Use various types of technology to meet the different learning goals
- Design instructional content for readability, navigability, and interactivity, all of which affect learner retention
- Design to the instructional strategies defined in the CDD
- Use frames only if necessary, since they increase complexity and apparent load time for WBT
- Use image maps judiciously to provide a graphical interface for navigation/hyperlinks, since they increase the transfer/load time for WBT
- Use animations, 3-D modeling, and compressed motion video only if required for effective content presentation of the content

As detailed during the Design phase, the Instructional Development Team should divide content into the modules/lessons/topics that have been identified in the CDD. The sample course structure illustrated below provides a visual representation of the relationship between the modules/lessons/topics. Each module/lesson/topic needs to include corresponding introduction, objective, and summary screens. Additionally, as described in the CDD, practice exercises should be embedded throughout each topic to “check in” with the learner. Knowledge check questions, which are written to support the Enterprise Learning Object (ELOs), should be included at the end of each lesson to measure learner performance.



Sample Course Structure

The storyboard process should be one of collaboration between the individuals writing the text, creating the graphics, and programming

the different elements. The storyboards should be self-contained and detailed enough so that they can be handed off to the Instructional Development Team with little to no additional explanation or information. Complete, detailed, and accurate the storyboards result in fewer questions and delays when developing the prototype.

Sections of the storyboard may include the following:

- **Visuals/Graphics**: Support the teaching points on the screen in a visual/graphic format by describing or illustrating the content through visual images (e.g., animations, videos, etc.). In addition, Alt-tag information should be identified in the storyboard for the graphics and visuals that will be used to comply with Section 508 standards.
- **Text/Narration**: Presents the textual content in support of the objectives. The textual content should also support the visual images. There might be multiple text/narration on the storyboard to support content for narrator, video segments, characters, etc. that have been identified in the course content.
- **Production/Programming Notes**: Describes where, when, what, and how the visual subject teaching points will be used. Contains the video shooting, timing, and display requirements, audio production and timing requirements, and/or special programming/coding instructions.

Storyboard Templates:

The storyboard template is a tool for designing course content and maintaining standards for text, graphic, and interactivity. To assist in the storyboarding process, a storyboard template should be developed and used to improve efficiency. A storyboard template may be developed in an actual Learning Content Management System (LCMS), or it may be created in common electronic formats. See the Resources for a sample storyboard template.

A storyboard template assists the Instructional Development Team by identifying the length of the content and visual elements. Storyboard templates provide an efficient tool for designing course content and creating a comfortable learning environment by maintaining a standard for text and graphic placement on the screen.

Accessibility:

Section 508 requires that Web-based Intranet and Internet information and applications developed or purchased by the Federal government be accessible to people with disabilities. The following accessibility guidelines apply and should be considered by the Instructional Development Team during storyboard development:

- Provide alternative text for content graphics, animations, and simulations that is consistent, clear, complete, and useful. Consider what the learner needs to know.
- Provide/coordinate synchronized text equivalents for multimedia

presentations.

- If color is used to convey important information, ensure the important information is also conveyed in an alternative manner, such as alternative text.
- Keep table formats simple. Avoid nesting tables in tables. Clearly label table columns and rows.
- Avoid the use of timed responses whenever possible. If a timed response is necessary, allow the learner to request additional time.

4. Develop the Lesson

During this step of developing the prototype, the Instructional Development Team should be working on two things in parallel (where appropriate):

- Developing Media Elements
- Programming the Course Content

Developing Media Elements:

Media elements provide visual and auditory component to the course content and are developed after the storyboards are complete. Examples of media elements include graphics, video, audio, animations, and photos. While the course elements are being developed, it is important for the Instructional Development Team responsible for writing the storyboards to be available to provide support and answer questions which may arise.

At this point in the process, it is very important that the Instructional Development Team have all existing media elements (e.g., photographs, videotapes, graphics, animation, and illustrations) that will be used in the course.

The library section of the RTDC contains the G&T Style Guide which provides recommendations and best practices for the following:

- Various media types (e.g., Flash, animations, illustrations, static graphics, digital video, simulations, games, and audio)
- Qualitative, quantitative, and technical considerations for developing graphics
- Qualitative, quantitative, and technical considerations for developing animations
- Pre and post-production standards for digital video and audio
- Streaming media

Programming Course Content:

For the course prototype, the single storyboarded lesson will be programmed to the standards set for the completed course. At this point in the process, the Instructional Development Team populates the templates with the course text, media elements, and additional functionality described in the storyboards. Steps should also be taken

to prepare the course for SCORM requirements (e.g., creation of the course manifest).

Note: The Instructional Development Team should reference the G&T Style Guide in the Library section of the RTDC for more detailed information pertaining to programming the course content.

Resource:

Please see the G&T Course Templates in the Style Guide and RTDC.

Resource:

Sample Content Storyboard

Version #:	[Enter version number.]	**Date:** [Enter date.]
Module Name:	[Enter module name.]	**#:** [Enter module number (e.g., 020)]
Lesson Name:	[Enter lesson name.]	**#:** [Enter lesson number (e.g., 010)]
Topic Name:	[Enter topic name.]	**#:** [Enter topic number (e.g., 020)]
Screen Name:	[Enter screen name.]	**#:** [Enter screen number (e.g., 050)]
Content:	[Enter screen text].	**Graphic Notes:** [Enter graphic description.] **Alt tag:** [Enter appropriate alt tag description.]
User Prompt:	[Enter user prompt (e.g., Click **Next** to continue.).]	
Programmer Notes:	[Enter programming notes (e.g., pop-up text information, interactivity descriptions, etc.)]	

Resource:

Sample Question Storyboard

Version #:	[Enter version number.]	**Date:** [Enter date.]
Module Name:	[Enter module name.]	**#:** [Enter module number (e.g., 020)]
Lesson Name:	[Enter lesson name.]	**#:** [Enter lesson number (e.g., 010)]
Topic Name:	[Enter topic name.]	**#:** [Enter topic number (e.g., 020)]
Screen Name:	[Enter screen name (e.g., Practice Exercise).]	**#:** [Enter screen number (e.g., 050)]
Content:	Select the correct response and click **Submit**. [Enter the question.] a. [Enter first distractor.] b. [Enter second distractor.] c. [Enter third distractor.] d. [Enter fourth distractor.] **Submit**	**Graphic Notes:** [Enter graphic description.] **Alt tag:** [Enter appropriate alt tag description.]
User Prompt:	[Enter user prompt (e.g., Click **Next** to continue.).]	
Programmer Notes:	[Enter programming notes (e.g., pop-up text information, interactivity descriptions, etc.)] **Question type**: [Enter the question type (e.g., multiple choice, multiple correct, etc.).] **Correct response**: [Enter the correct distractor.] **Correct feedback**: Correct. [Enter correct feedback.] **Incorrect feedback**: Incorrect. The correct response is [enter the correct distractor]. [Enter incorrect feedback.].	

Resource:

Tips for Developing Detailed Storyboards

There are several essential components that should appear in a good storyboard; quality components include the following:

- Textual content
- Correct placement for all elements (i.e., text, graphics, video, or animation)
- Sketches/examples or descriptions of visual elements (including alternative text tags)
- Instructions and/or descriptions for audio elements
- Text description of “what’s happening” on the screen
- Navigational paths
- Additional programming instructions
- Course, lesson, and screen identifiers
- Page numbers and file names
- Date and version number

Resource:

Hints

The following list contains the recommended standards for text presentation and appearance:

- Do not indent paragraphs.
- Use left justification for basic text.
- Reserve upper case words for certain titles, and even then, use them sparingly.
- Limit the amount of text on screen; use short lines of 40-60 characters.
- Use short sentences and paragraphs. Use bullets, numbered lists, tables, and charts to break up lengthy sentences.
- Provide generous white space to separate blocks of text.
- Avoid long segments of text wherever possible. Convert full text documents, or long text segments requiring more space than is available on a single screen, to PDF format.
- Use no more than three different font sizes on a page.
- Flush left margins are better than centered text.
- Do not use a text effect that makes text disappear after a certain amount of time.
- Avoid special effects (blinking, flashing, or moving text) unless desired for emphasis or to gain attention.
- Use natural dialogue and a spell checker for scripts.
- Do not use underlining except for hyperlinks. Glossary words and important terms and phrases are hyperlinked, providing learners with access to additional information. To emphasize a word or concept, use bold; avoid using italics, all-capitals, or underlines.
- Hyperlinks will have three colors, specified by graphic designers, to indicate the hyperlinks states; normal state (link has not been accessed), rollover state (link is currently being accessed), and visited state (link has already been accessed).

Task 2: Submit WBT Prototype

Explanation

Submit the prototype course materials to the G&T Program Manager for review and approval before continuing to develop the rest of the course. G&T will review the prototype to ensure the course meets the approved course design.

The G&T Program Manager will inform the Instructional Development Team of whether or not they have approval to move forward with developing the Draft Course.

Task 3: Develop Draft WBT Course

Explanation

The Draft WBT course is the third task in the Development phase. During this task, the complete set of storyboards for all modules/lessons/topics will be written, media elements will be created, and the course content will be programmed. The Instructional Development Team responsible for writing the storyboards should hand off each completed set of storyboards as they are finished so that the media elements can be created, the content programmed, and the next set of storyboards can be created.

Note: The recommended course templates and the G&T Style Guide are located in the Library section of the RTDC.

Process

The WBT draft course step includes:

1. Write the Storyboards

   An accurate content outline, CDD, and the proper application of the G&T Style Guide are critical to the success of developing complete and accurate storyboards.

   Storyboards are the blueprints of the Web-based course design and development process. Storyboards provide a textual and visual description of content, graphics, animations, and other media elements that communicate all of the necessary information about the course content and how it should display. This format enables the Instructional Development Team to plan, organize, and sequence visual instruction for the WBT. The information provided should coordinate the textual content with associated visuals, show the sequencing of visual information, and provide directions for production and programming. The information and descriptions provide a baseline from which the Instructional Development Team reduce or eliminate assumptions, questions, or confusion about the course.

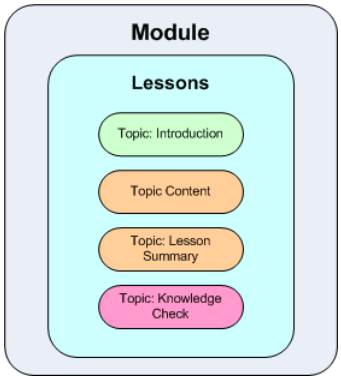
   When designing a WBT, the Instructional Development Team should do the following:

   - Use various types of technology to meet the different learning goals
   - Design instructional content for readability, navigability, and interactivity, all of which affect learner retention
   - Design to the instructional strategies defined in the CDD
   - Use frames only if necessary, since they increase complexity and apparent load time for WBT
   - Use image maps judiciously to provide a graphical interface for navigation/hyperlinks, since they increase the transfer/load time

for WBT

- Use animations, 3-D modeling, and compressed motion video only if required for effective content presentation

As detailed during the Design phase, the Instructional Development Team should divide content into the modules/lessons/topics that have been identified in the CDD. The sample course structure illustrated below provides a visual representation of the relationship between the modules/lessons/topics. Each module/lesson/topic needs to include corresponding introduction, objective, and summary screens. Additionally, as described in the CDD, practice exercises should be embedded throughout each topic to “check in” with the learner. Knowledge check questions, which are written to support the ELOs, should be included at the end of each lesson to measure learner performance.



Sample Course Structure

The storyboard process should be one of collaboration between the individuals writing the text, creating the graphics, and programming the different elements. The storyboards should be self-contained and detailed enough so that they can be handed off to other the Instructional Development Team with little to no additional explanation or information. Complete, detailed, and accurate storyboards result in fewer questions and delays when developing the prototype.

Sections of the storyboard may include the following:

- **Visuals/Graphics**: Support the teaching points on the screen in a visual/graphic format by describing or illustrating the content through visual images (e.g., animations, videos, etc.). In addition, Alt-tag information should be identified in the storyboard for the graphics and visuals that will be used to comply with Section 508 standards.
- **Text/Narration**: Presents the textual content in support of the objectives. The textual content should also support the visual images. There might be multiple text/narration on the storyboard to support content for narrator, video segments, characters, etc. that have been identified in the course content.

- **Production/Programming Notes**: Describes where, when, what, and how the visual subject teaching points will be used. Contains the video shooting, timing, and display requirements, audio production and timing requirements, and/or special programming/coding instructions.

Storyboard Templates

The storyboard template is a tool for designing course content and maintaining standards for text, graphic, and interactivity. To assist in the storyboarding process, a storyboard template should be developed and used to improve efficiency. A storyboard template may be developed in an actual LCMS, or it may be created in common electronic formats. See the Resources for a sample storyboard template.

A storyboard template assists the Instructional Development Team by identifying the length of the content and visual elements. Storyboard templates provide an efficient tool for designing course content and creating a comfortable learning environment by maintaining a standard for text and graphic placement on the screen.

Accessibility

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- Provide alternative text for content graphics, animations, and simulations that is consistent, clear, complete, and useful. Consider what the learner needs to know.
- Provide/coordinate synchronized text equivalents for multimedia presentations.
- If color is used to convey important information, ensure the important information is also conveyed in an alternative manner, such as alternative text.
- Keep table formats simple. Avoid nesting tables in tables. Clearly label table columns and rows.
- Avoid the use of timed responses whenever possible. If a timed response is necessary, allow the learner to request additional time.

2. Develop the Modules/Lessons/Topics

   During this step of developing the prototype, the Instructional Development Team should be working on two things in parallel (where appropriate):

   - Developing Media Elements
   - Programming the Course Content

Developing Media Elements:

Media elements provide visual and auditory component to the course content, and are developed after the storyboards are complete. Examples of media elements include graphics, video, audio, animations, and photos. While the course elements are being developed, it is important for the Instructional Development Team responsible for writing the storyboards to be available to provide support and answer questions that may arise.

At this point in the process, it is very important that the Instructional Development Team have all existing media elements (e.g., photographs, videotapes, graphics, animation, and illustrations) that will be used in the course.

The library section of the RTDC contains the G&T Style Guide, which provides recommendations and best practices for:

- Various media types (e.g., Flash, animations, illustrations, static graphics, digital video, simulations, games, and audio)
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- Pre and post-production standards for digital video and audio
- Streaming media

Programming Course Content:

For the course prototype, the single storyboarded lesson will be programmed to the standards set for the completed course. At this point in the process, the Instructional Development Team populates the templates with the course text, media elements, and additional functionality described in the storyboards. Steps should also be taken to prepare the course for SCORM requirements (e.g., creation of the course manifest).

Note: The Instructional Development Team should reference the G&T Style Guide in the Library section of the RTDC for more detailed information pertaining to programming the course content.

Resources:

- G&T Style Guide
- Course Templates

Resource:
Sample Content Storyboard

Version #:	[Enter version number.]	**Date:** [Enter date.]
Module Name:	[Enter module name.]	**#:** [Enter module number (e.g., 020)]
Lesson Name:	[Enter lesson name.]	**#:** [Enter lesson number (e.g., 010)]
Topic Name:	[Enter topic name.]	**#:** [Enter topic number (e.g., 020)]
Screen Name:	[Enter screen name.]	**#:** [Enter screen number (e.g., 050)]
Content:	[Enter screen text].	**Graphic Notes:** [Enter graphic description.] **Alt tag:** [Enter appropriate alt tag description.]
User Prompt:	[Enter user prompt (e.g., Click **Next** to continue.).]	
Programmer Notes:	[Enter programming notes (e.g., pop-up text information, interactivity descriptions, etc.)]	

Resource:
Sample Question Storyboard

Version #:	[Enter version number.]	**Date:** [Enter date.]
Module Name:	[Enter module name.]	**#:** [Enter module number (e.g., 020)]
Lesson Name:	[Enter lesson name.]	**#:** [Enter lesson number (e.g., 010)]
Topic Name:	[Enter topic name.]	**#:** [Enter topic number (e.g., 020)]
Screen Name:	[Enter screen name (e.g., Practice Exercise).]	**#:** [Enter screen number (e.g., 050)]
Content:	Select the correct response and click **Submit**. [Enter the question.] a. [Enter first distractor.] b. [Enter second distractor.] c. [Enter third distractor.] d. [Enter fourth distractor.] **Submit**	**Graphic Notes:** [Enter graphic description.] **Alt tag:** [Enter appropriate alt tag description.]
User Prompt:	[Enter user prompt (e.g., Click **Next** to continue.).]	
Programmer Notes:	[Enter programming notes (e.g., pop-up text information, interactivity descriptions, etc.)] **Question type**: [Enter the question type (e.g., multiple choice, multiple correct, etc.).] **Correct response**: [Enter the correct distractor.] **Correct feedback**: Correct. [Enter correct feedback.] **Incorrect feedback**: Incorrect. The correct response is [enter the correct distractor]. [Enter incorrect feedback.].	

Resource:

Tips for Developing Detailed Storyboards

There are several essential components that should appear in a good storyboard; quality components include the following:

- Textual content
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- Text description of "what's happening" on the screen
- Navigational paths
- Additional programming instructions
- Course, lesson, and screen identifiers
- Page numbers and file names
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Resource:

Hints

The following list contains the recommended standards for text presentation and appearance:

- Do not indent paragraphs.
- Use left justification for basic text.
- Reserve upper case words for certain titles, and even then, use them sparingly.
- Limit the amount of text on screen; use short lines of 40-60 characters.
- Use short sentences and paragraphs. Use bullets, numbered lists, tables, and charts to break up lengthy sentences.
- Provide generous white space to separate blocks of text.
- Avoid long segments of text wherever possible. Convert full text documents, or long text segments requiring more space than is available on a single screen, to PDF format.
- Use no more than three different font sizes on a page.
- Flush left margins are better than centered text.
- Do not use a text effect that makes text disappear after a certain

amount of time.

- Avoid special effects (blinking, flashing, or moving text) unless desired for emphasis or to gain attention.
- Use natural dialogue and a spell checker for scripts.
- Do not use underlining except for hyperlinks. Glossary words and important terms and phrases are hyperlinked, providing learners with access to additional information. To emphasize a word or concept, use bold; avoid using italics, all-capitals, or underlines.
- Hyperlinks will have three colors specified by graphic designers to indicate the hyperlinks states: normal state (link has not been accessed), rollover state (link is currently being accessed), and visited state (link has already been accessed).

Task 4: Submit Draft WBT Course

Explanation Submit the draft course materials to the G&T Program Manager.

Development Phase - ILT

Overview

At this point in the process (the Development phase) the CDD has been written and the course structure/content outline defined. In an effort to assist the Instructional Development Team and to ensure consistency across courses, G&T created the Training Support Package (TSP). The TSP provides all of the materials needed to create Instructor-Led Training (ILT) in adherence with G&T standards and best practices. Located on the RTDC for easy access, the TSP is composed of the following templates:

- CDD (developed during the Design phase)
- Procedure-Based Instructor Guide
- Non-Procedure-Based Instructor Guide
- Procedure-Based Participant Guide
- Non-Procedure-Based Participant Guide
- Practical Exercises
- PowerPoint Template
- Packaging Materials
- Cover Page
- Binder Spine
- Binder Section Pages
- Compact Disc (CD) Label
- VHS Cover Label

The Instructional Development Team will be developing either a procedure or non-procedure-based ILT course. The development process for both types of courses is primarily the same.

Tasks

The major tasks in the Development ILT phase include:

1.	**Develop Prototype**
2.	**Submit Prototype**
3.	**Develop Draft Course**
4.	**Submit Draft Course**

Task 1: Develop Prototype

Explanation

Developing a prototype is the first step of the ILT Development phase. For the ILT course prototype, one completed lesson of the course materials needs to be developed. It is recommended that the lesson chosen for the prototype be one that is most representative of the entire course (i.e., select the lesson containing different visuals or supporting materials versus the short and least complicated lesson). The course prototype must include all materials needed to conduct the lesson (e.g., instructor and participant guides, supporting materials, practical exercises, etc.).

Recommended formats and templates for all materials to be included in the course are located in the Library section of the RTDC.

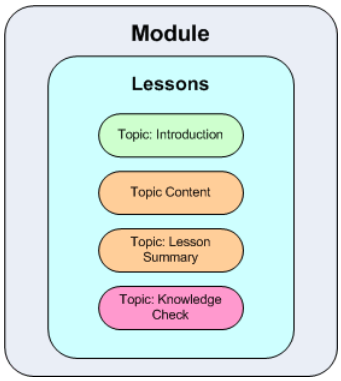
Process

The Instructional Development Team should consider the following steps:

1. Develop the Instructor Guide

   The Instructor Guide is what instructors use to present the instructional materials to the learners. Its purpose is to standardize the instruction to ensure that all learners consistently receive the same instruction during every instance of the course, and to improve the overall quality of the course. Based upon the CDD and content outline, the Instructional Development Team will create either a procedure or non-procedure-based Instructor Guide. When developing the Instructor Guide, it is important for the Instructional Development Team to use the existing materials (e.g., content, resources, etc.) as identified during the Design phase to prevent unnecessary work. If, however, there are gaps in the material, the content should be developed according to the specifications outlined in the CDD. The Instructional Development Team should develop the Instructor Guide prior to the Participant Guide in order to leverage the content and prevent unnecessary rework.

   As detailed during the Design phase, the Instructional Development Team should divide the content into the modules/lessons/topics that have been identified in the CDD. The sample course structure illustrated below provides a visual representation of the relationship between the modules/lessons/topics. The Instructor Guide can be written as a narrative, an outline, or both, following the design standards established in the CDD. A narrative is an aid for the new or substitute instructor, or for material that is not frequently presented to maintain proficiency. Instructors who are proficient with the Instructor Guide in the narrative form may choose to use only the outline.



Sample Course Structure

The Instructor Guide should include transitions to tie together main ideas in a lesson or topic. The instructor can convey the relevance of course materials during the transitions. Transitions reinforce the conceptual framework of the lesson or topic, enable the instructor to use questioning techniques and gather feedback from learners, and maintain a smooth course flow.

The Instructional Development Team must keep in mind that it is important to use visual cues to draw the instructor's attention to an important piece of information, a tip, or a warning. The Instructor Guide template includes icons to be used for this purpose.

The Instructor Guide may include:

- Cover page
- Course introduction
- Administration page
- Course content
- Notes
- Practical exercises

Note: The library section of the RTDC contains procedure and non-procedure-based Instructor Guide templates.

2. Develop the Necessary Supporting Materials

   Depending upon the subject matter and the content compiled and detailed during the Design phase, the Instructional Development Team may need to develop supporting materials. The following list includes, but is not limited to, examples of supporting materials:

   - Job aids
   - Knowledge check questions
   - PowerPoint presentation
   - Handouts
   - Resource list

3. Develop Practical Exercises (as necessary)

   Depending upon what was outlined in the CDD, some courses may require practical exercises. Practical exercises are comprised of the following:

   - Introduction – includes the exercise objective
   - Actions to be completed – provides the desired exercise results as well as a complete description of exercise procedures including evaluation criteria and safety requirements
   - Rationale – provides learners with the necessary information for completing the exercise (e.g., situation, assignments, procedures, evaluation criteria, assignments or roles learners will play, as applicable)
   - Time necessary to complete – informs learners of the amount of time they have to complete the exercise
   - Resources – lists the resources needed to complete the exercise (e.g., a list all of the necessary equipment and a list of all personnel required to conduct the exercise, including learners and instructor/support staff
   - Findings – provides a detailed description of topics that should be addressed during of learner performance

   Examples of practical exercises include but are not limited to the following:

   - Case studies
   - Hands-on activities (as appropriate/feasible)
   - Small group discussions

Note: The library section of the RTDC contains the Practical Exercise template.

4. Develop the Participant Guide

   At this point in the Development phase, the Instructional Development Team begins creating the Participant Guide. The Participant Guide may serve multiple purposes as it may be designed for learners to use during the classroom instruction and/or as a resource for future reference.

   The Participant Guide may include the following:

   - Cover page
   - Course introduction
   - Administration page
   - Course content (e.g., objectives, textual content, visual aids, review exercises, handouts, etc.)
   - Practical exercises

   While developing the Participant Guide, it is important for the

Instructional Development Team to determine and plan for specific course requirements and embed appropriate references within the content:

- Will learners need to access a Website? If yes, include current/active URL.
- Will learners need to refer to one of their resources? If yes, indicate the resource and identify the appropriate page.

Note: The library section of the RTDC contains procedure and non-procedure-based Participant Guide templates.

5. Develop Packaging Materials

   The packaging materials, as highlighted in the RTDC, are used to ensure consistent presentation and delivery of the course materials, and are developed per the needs of a specific course. The Instructional Development Team need only include those materials that meet the requirements of a specific course.

   Examples of packaging materials include the following:

   - Cover page
   - Binder spine
   - Binder section pages
   - Disclaimer page
   - CD label
   - VHS label

   Below is a list of things the Instructional Development Team should consider when printing materials:

   - Should they be printed in Color or Black & White?
   - Should they be printed single-sided or front/back
   - How many total pages (to include cover pages and supporting materials)?
   - How many copies?
   - What size binder?
   - How many binders?
   - What type of binder?
   - What types of folders?
   - How many folders?

Note: The library section of the RTDC contains the Packaging Materials templates.

Resource:

The following templates are available in the Library section of the RTDC:

- G&T Style Guide
- Procedure-based Instructor Guide
- Non-Procedure-based Instructor Guide
- Procedure-based Participant Guide
- Non-Procedure-based Participant Guide
- Practical Exercises
- PowerPoint Template
- Packaging Materials

Resource:

Best Practices for Developing Job Aids

The elements to consider for paper-based job aids include:

- Format
- Title
- Organization Identification
- Color
- Use of Graphical Enhancements

Format

Paper-based job aids can be developed in a variety of formats and sizes. Use the following guidelines when formatting a job aid:

- Job aids can consist of procedures, checklists, questionnaires, spreadsheets, or other formatting.
- The size of a paper-based job aid can vary, based on its content. Use appropriately sized paper, based on design details.
- Paper-based job aids can be one page or multiple pages. They can be individual pages or bound, as applicable.
- Lamination can be used to protect the job aid (if applicable).

Title

The title of a job aid is important, as it informs the learner of its purpose. The Instructional Development Team should use the following standards when creating a title for the job aid:

- Ensure the title is clear to the learner
- Ensure the title describes its functions

Organization Identification

The logo should be present on paper-based job aids to ensure organization identity. Division identity (if applicable) can also be acknowledged. Use the following standards when applying the logo to a job aid:

- Ensure logo is an enhancement to the document and not a hindrance to the job aid
- Ensure logo does not interfere with the content

Color

Color visually enhances the job aid. Use the following guidelines when choosing colors:

- Choose a light-colored paper (e.g., buff, light gray, or light blue paper). White paper is preferred.
- Choose a dark-colored font. Black or dark blue work well with paper-based job aids.

Graphical Enhancements

Graphical enhancements are a critical component of job aid development. Graphics assist the learner with visual understanding of the purpose of the job. Graphics for use in job aids can include the following:

- Screenshots
- Icons
- Flowcharts
- Diagrams
- Spreadsheets

Each of these elements should be presented clearly and completely on the job aid.

Paper-based job aids should not include true graphics or clip art, as they are a distraction for this type of training solution.

Resource:

Paper-Based Job Aid Examples

JOB AID for Packers – Field Office Packages

1. Each box gets:

   Posters can be packed ahead of time in poster box and envelope)

   - One large poster box (with **two** of the large diversity posters rolled)
   - One poster envelope with **five** 11x17 posters:
     - 2 stand up posters (bound)
     - 2 posters (not bound)
     - 1 triangle poster (not bound)

- One Raffle Ticket envelope
- One Chairman video
- One "message" video
- One set of Masters (shrink-wrapped)of Employee Briefing
- One *Sample* Employee Briefing Packet

Mailing Label indicates what else goes in each Field Office Box, specific to each Field Office. The numbers indicate the number of items for each field office.

Mailing Label

Number of: _____
- Presenters Guides
- Reference Materials (1 article, 2 Books)
  - "From Affirmative Action....."
  - "Managing Diversity....."
  - "Handling Diversity in the ....."

Address .....

.....

.....

Number of: _____
- Brochures (small quick reference guide)
- Pens
- Pins
- Badge Holders (Lanyards)

Additional gifts -
(If indicated)

Packing Instructions – Layout Recommendation

START

①	② Mailing Box	③	④	⑤	⑥
Raffle ticket envelopes with mailing label and packing list attached ➡	(with Poster Box and Poster envelope already inside) ➡	Add Chairman Video ➡	Add Message Video ➡	Add Masters (shrink-wrapped) ➡	Add Sample Employee Packet ➡

NEXT - The **number of the items listed below** that is put in each box is determined by the numbers on the **mailing label**

🡻

⑦	⑧	⑨	⑩	(11)	(12)
Top right # - # of Presenters' Guides ➡	Top right # - # of References: • Affirmative Action article • Book – Managing Diversity… • Book – Handling Diversity… ➡	Bottom right # # of Brochures (reference guides) ➡	Bottom right # # of Pins 🡻 Bottom right # # of Pens ➡	Bottom right # # of Badge Holders (Lanyards) ➡	Bottom left items- Include one of the following, if indicated on label - Boxed pen - Barnes/Nobel Gift certificate - Canvas bag 🡻 ---------- (13) Finally – put packing list on top of box. Tape shut and attach mailing label. ✓Check off on mailing list.

Resource:
Question Examples

Knowledge Check/Exam Examples

Multiple Choice

Directions: Choose the correct response for each question below.

1. A dog has _____ legs.
   a. Two
   b. Four
   c. Six
   d. Three

Matching

Directions: Select the lettered item from the right column that corresponds to the numbered item in the left column:

_____	1. Human	a. Eight
_____	2. Human	b. Eight
_____	3. Human	c. Eight

True or False

Directions: Circle true if the statement is correct, or false if the statement is incorrect.

1. A dog has six legs.
   True False
2. A human has four legs.
   True False

Task 2: Submit ILT Prototype

Explanation

Upon completion of the prototype, submit the prototype course materials to the G&T Program Manager for review and approval before continuing to develop the rest of the course. G&T will review the prototype to ensure the course meets the approved course design.

The G&T Program Manager will inform the Instructional Development Team of the approval or disapproval to move forward with developing the remainder of the course.

Task 3: Develop Draft ILT Course

Explanation

After the course prototype has been approved by G&T, the next task for the Instructional Development Team is to develop the draft ILT course. The draft ILT course is the third task in the Development phase. During this part of the phase, the complete set of course materials for all modules/lessons/topics will be created.

The Instructional Development Team should continue the ILT course material development by creating the remaining Instructor Guide materials and the corresponding Participant Guide.

Recommended formats and templates for all materials to be included in the course are located in the Library section of the RTDC.

Process

The Instructional Development Team should consider the following steps:

1. Develop the Instructor Guide

   Based upon the CDD, content outline, and the prototype, the Instructional Development Team will create either a procedure or non-procedure-based Instructor Guide. When developing the Instructor Guide, it is important for the Instructional Development Team to use the existing materials (e.g., content, resources, etc.), as identified during the Design phase, to prevent unnecessary work. If, however, there are gaps in the material, the content should be developed according to the specifications outlined in the CDD.

   As detailed during the Design phase and completed during the prototype, the Instructional Development Team should proceed by dividing the content into the remaining modules/lessons/topics that have been identified in the CDD. The Instructor Guide can be written as a narrative, an outline, or both, following the design standards established in the CDD. A narrative is an aid for the new or substitute instructor, or for material that is not frequently presented to maintain proficiency. Instructors who are proficient with the Instructor Guide in the narrative form may choose to use only the outline.

   The Instructor Guide should include transitions to tie together main ideas in a lesson or topic. The instructor can convey the relevance of course materials during the transitions. Transitions reinforce the conceptual framework of the lesson or topic, enable the instructor to use questioning techniques and gather feedback from learners, and enable the instructor to maintain a smooth course flow.

   The Instructional Development Team must keep in mind that it is important to use visual cues to draw the instructor's attention to an important piece of information, a tip, or a warning. The Instructor Guide template includes icons for this purpose.

The Instructor Guide may include:

- Cover page
- Course introduction
- Administration page
- Course content
- Notes
- Practical exercises

Note: The library section of the RTDC contains procedure and non-procedure-based Instructor Guide templates.

2. Develop the Necessary Supporting Materials

   Depending upon the subject matter and the content compiled and detailed during the Design phase, the Instructional Development Team may need to develop supporting materials. The following list includes, but is not limited to, examples of supporting materials:

   - Job aids
   - Knowledge check questions
   - PowerPoint presentation
   - Handouts
   - Resource list

3. Develop Practical Exercises (as necessary)

   Depending upon what was outlined in the CDD, some courses may require practical exercises. Practical exercises are composed of the following:

   - Introduction – includes the exercise objective
   - Actions to be completed – provides the desired exercise results as well as a complete description of exercise procedures, including evaluation criteria and safety requirements
   - Rationale – provides learners with the necessary information for completing the exercise (e.g., situation, assignments, procedures, evaluation criteria, assignments or roles learners will play, as applicable)
   - Time necessary to complete – informs learners of the amount of time they have to complete the exercise
   - Resources – lists the resources needed to complete the exercise (e.g., a list all of the necessary equipment and a list of all personnel required to conduct the exercise, including learners and instructor/support staff)
   - Findings – provides a detailed description of topics that should be addressed during of learner performance

   Examples of practical exercises include but are not limited to the following:

- Case studies
- Hands-on activities (as appropriate/feasible)
- Small group discussions

Note: The library section of the RTDC contains the Practical Exercise template.

4. Develop the Participant Guide

   At this point in the Development phase, the Instructional Development Team begins creating the Participant Guide. The Participant Guide may serve multiple purposes as it may be designed for learners to use during the classroom instruction and/or as a resource for future reference.

   The Participant Guide may include the following:

   - Cover page
   - Course introduction
   - Administration page
   - Course content (e.g., objectives, textual content, visual aids, review exercises, handouts, etc.)
   - Practical exercises

   While developing the Participant Guide, it is important for the Instructional Development Team to determine and plan for specific course requirements and embed appropriate references within the content:

   - Will learners need to access a Website? If yes, include current/active URL.
   - Will learners need to refer to one of their resources? If yes, indicate the resource and identify the appropriate page.

Note: The library section of the RTDC contains procedure and non-procedure-based Participant Guide templates.

5. Develop Packaging Materials

   The packaging materials, as highlighted in the RTDC, are used to ensure consistent presentation and delivery of the course materials and are developed per the needs of a specific course. The Instructional Development Team need only include those materials that meet the requirements of a specific course.

   Examples of packaging materials include the following:

   - Cover page
   - Binder spine
   - Binder section pages
   - Disclaimer page
   - CD label

- VHS label

Below is a list of things the Instructional Development Team should consider when printing materials:

- Should they be printed in Color or Black & White?
- Should they be printed single-sided or front/back
- How many total pages (to include cover pages and supporting materials)
- How many copies?
- What size binder?
- How many binders?
- What type of binder?
- What types of folders?
- How many folders?

Note: The library section of the RTDC contains the Packaging Materials templates.

Resource:

The following templates are available in the Library section of the RTDC:

- G&T Style Guide
- Procedure-based Instructor Guide
- Non-Procedure-based Instructor Guide
- Procedure-based Participant Guide
- Non-Procedure-based Participant Guide
- Practical Exercises
- PowerPoint Template
- Packaging Materials

Resource:

Best Practices for Developing Job Aids

The elements to consider for paper-based job aids include:

- Format
- Title
- Organization Identification
- Color

- Use of Graphical Enhancements

Format

Paper-based job aids can be developed in a variety of formats and sizes. Use the following guidelines when formatting a job aid:

- Job aids can consist of procedures, checklists, questionnaires, spreadsheets, or other formatting.
- The size of a paper-based job aid can vary, based on its content. Use appropriate-sized paper, based on design details.
- Paper-based job aids can be one page or multiple pages. They can be individual pages or bound, as applicable.
- Lamination can be used to protect the job aid (if applicable).

Title

The title of a job aid is important, as it informs the learner of its purpose. Use the following standards when creating a title for the job aid:

- Ensure the title is clear to the learner
- Ensure the title describes its functions

Organization Identification

The logo should be present on paper-based job aids to ensure organization identity. Division identity (if applicable) can also be acknowledged. Use the following standards when applying the logo to a job aid:

- Ensure logo is an enhancement to the document and not a hindrance to the job aid
- Ensure logo does not interfere with the content

Color

Color visually enhances the job aid. Use the following guidelines when choosing colors:

- Choose a light-colored paper (e.g., buff, light gray, or light blue paper). White paper is preferred.
- Choose a dark-colored font. Black or dark blue work well with paper-based job aids.

Graphical Enhancements

Graphical enhancements are a critical component of job aid development. Graphics assist the learner with visual understanding of the purpose of the job. Graphics for use in job aids can include the following:

- Screenshots
- Icons
- Flowcharts
- Diagrams
- Spreadsheets

Each of these elements should be presented clearly and completely on the job aid. Paper-based job aids should not include true graphics or clip art as

they are a distraction for this type of training solution.

Resource:

Paper-Based Job Aid Examples

JOB AID for Packers – Field Office Packages

1. Each box gets:

   Posters can be packed ahead of time in poster box and envelope)

   - One large poster box (with **two** of the large diversity posters rolled)
   - One poster envelope with **five** 11x17 posters:
     - 2 stand up posters (bound)
     - 2 posters (not bound)
     - 1 triangle poster (not bound)

- One Raffle Ticket envelope
- One Chairman video
- One "message" video
- One set of Masters (shrink-wrapped)of Employee Briefing
- One *Sample* Employee Briefing Packet

Mailing Label indicates what else goes in each Field Office Box, specific to each Field Office. The numbers indicate the number of items for each field office.

Mailing Label

Number of: _____
- Presenters Guides
- Reference Materials (1 article, 2 Books)
  - "From Affirmative Action....."
  - "Managing Diversity....."
  - "Handling Diversity in the ....."

Address .....
.....
.....

Number of: _____
- Brochures (small quick reference guide)
- Pens
- Pins
- Badge Holders (Lanyards)

Additional gifts -
(If indicated)

Packing Instructions – Layout Recommendation

START

①	② Mailing Box	③	④	⑤	⑥
Raffle ticket envelopes with mailing label and packing list attached ➡	(with Poster Box and Poster envelope already inside) ➡	Add Chairman Video ➡	Add Message Video ➡	Add Masters (shrink-wrapped) ➡	Add Sample Employee Packet ➡

NEXT - The **number of the items listed below** that is put in each box is determined by the numbers on the **mailing label**

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True or False

Directions: Circle true if the statement is correct, or false if the statement is incorrect.

1. A dog has six legs.
   True False
2. A human has four legs.
   True False

Task 4: Submit Draft ILT Course

Explanation When the Instructional Development Team has finished developing the entire ILT course, submit the course materials to the G&T Program Manager.

Review Stage

Introduction

REVIEW is the third stage in the Responder Training Development Center (RTDC). The REVIEW Stage includes the following phases of the Instructional Systems Design (ISD) process:

- Phase 4: Implementation
- Phase 5: Evaluation

Review and Approval Requirements

During the REVIEW stage, the following list specifies Office of Grants and Training (G&T) and non-G&T requirements for course review and approval:

For G&T

- Conduct Pilots
- Submit Course Evaluations
- Course Revisions
- Board Review
- Course Validation

Non-G&T

Existing courses

- Submit Request for Addition to the Approved State/Federal-sponsored Course Catalog Form
- Submit Course Review and Approval Request Form - Federal/State-sponsored
- Submit courseware/materials for review

New courses

- Submit Course Review and Approval Request Form - Federal/State-sponsored
- Submit courseware/materials for review

Implementation Phase

Overview

Phase 4: Implementation of the Planning, Analysis, Design, Development, Implementation, and Evaluation (PADDIE) process involves making sure that all system functions are in place to support and maintain the instruction. Implementing and maintaining a fully operational, instructionally sound course requires functional support from a variety of areas. Personnel and processes are needed to manage, administer, support, and deliver the instruction.

Once the course is operational, it requires continuous support and maintenance to ensure that it operates effectively and cost-efficiently and produces learners who meet job performance requirements.

The Implementation phase is a broad phase that contains many diverse tasks and process considerations.

Tasks

The major tasks in the Implementation phase include:

1.	**Integrate and Test Courseware (Web-based Training (WBT) Only)**
2.	**Coordinate the Support/Admin Function**
3.	**Prepare to Deliver a Course**

Task 1: Integrate and Test Courseware (WBT Only)

Explanation

The first task pertains to Web-based Training (WBT) courses. Before WBT can be implemented for the target audience as a whole, it must first be integrated into the identified delivery (host) environment. Then it must be tested to ensure all components function as expected and that learners are able to access all instructional elements (i.e., the courseware, embedded links to Websites, and associated electronic documents, etc.) easily and without additional assistance.

Process

There are a number of steps involved in this process, including proper content integration into the Learning Management or Learning Content Management System (LMS/LCMS) environment, ensuring that the Sharable Content Object Reference Model (SCORM) functionality regarding interoperability is working correctly from both a content and LMS perspective, that the course is functioning as expected, and that the content is accessible from a Section 508 perspective. These processes require a number of technical evaluations and considerations. For a complete listing of the necessary processes required, please reference the WBT/ADL (Advanced Distributed Learning) section of the G&T Style Guide (available from the Library section of the RTDC).

Resource:

Functional Test Questionnaire

Questionnaire Key	
Directions: Use the following as a key to complete the information in the Results box.	
Performed as Expected	The courseware completed the requested action (e.g., keyboard input, mouse click, played video and/or audio clip, etc.) properly and as expected.
Unexpected Result	The courseware completed the requested action, but did not return an expected result (e.g., showed only a partial screen, went to an incorrect screen, scored a question/test incorrectly, performed some action other than what the Instructional Development Team expected).
Did Not Function	The courseware did not respond to the input.

Error	The screen displayed an error message after receiving the input. Please transcribe the error message as fully as the Instructional Development Team can onto the Exception Form.
Not Applicable	This courseware does not include this functionality (e.g., no video or audio).
Correct	There are no errors in the items described.
Incorrect	There are errors in the items described (detail items on the Exception form).

Tests	Item(s) to be Tested	Results
Test 1: Communication with the LMS	Does the course launch properly when the Instructional Development Team clicks the link in the Development Plan?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Go partway into the course, set a bookmark, and log off. Is the Instructional Development Team returned to the LMS or another application without error?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
	Re-enter the course. Was the Instructional Development Team returned to the bookmarked location?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Was the Learning History updated upon completion of the course?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
Test 2: Navigation	Click on every link. Does the course take the Instructional Development Team where the Instructional Development Team expects to go?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
	Click the “Next” (or “Forward”) button; click the “Previous” (or “Back”) button. Does the course take the Instructional Development Team where the Instructional Development Team expects to go?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Do the menus work as they should?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Does each screen scroll as it should?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
	Do the navigation buttons and/or links have a consistent appearance on each page?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
Test 3: Screen/Page Lathe Instructional Development	Do the standard features (text, graphics, animations, and video) align uniformly from page to page or screen to screen?	☐ Correct ☐ Incorrect
	Are the colors consistent from page to page or screen to screen?	☐ Correct ☐ Incorrect
	Is the spacing and alignment of paragraphs, bullets, menus, titles, glossary items, quiz questions, and answers consistent?	☐ Correct ☐ Incorrect
	Is there a consistent amount of space from the text (or graphic, animation, or video) to the border?	☐ Correct ☐ Incorrect
Test 4: Screen/Page Textual Content	Do titles and topic headers appear on every screen or page?	☐ Correct ☐ Incorrect
	Are there any incorrect quiz answers or inappropriate distracters? (For example, for the question “2+2=”, the possible answers should all be numbers; “orange” would be an inappropriate distracter.)	☐ Correct ☐ Incorrect

Tests	Item(s) to be Tested	Results
	Are the font sizes, types, and colors consistent for similar items from page to page, or from screen to screen? (For example, do all the headings look alike? Text? Captions?)	☐ Correct ☐ Incorrect
Test 5: Textual Content Grammar	Are there errors in spelling or grammar (e.g., sentence structure, verb tense, punctuation)?	☐ Correct ☐ Incorrect
	Are the style of writing and word usage consistent from page to page and from screen to screen? (Formal vs. informal style; smooth vs. abrupt; words do not have different meanings on different screens or pages.)	☐ Correct ☐ Incorrect
	Does the content flow logically from page to page or from screen to screen, without logical gaps or organizational disruptions?	☐ Correct ☐ Incorrect
	Is there any redundancy in the text? (Does not include obvious repetition for educational effect.)	☐ Correct ☐ Incorrect
	Are all abbreviations, acronyms, and unfamiliar terms defined the first time they are used and/or identified as “hot words”, and linked to their definitions?	☐ Correct ☐ Incorrect
Test 6: Graphics and Animations	Are the animations smooth?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
	Do the animations run at an appropriate speed?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Do the graphics and animations load (start) relatively quickly?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Are the graphics/animations clean and clear?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
	Do graphics and animations appear in the appropriate place on the screen?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Are the graphics and animations of the correct size and proportion?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Are the colors of the graphics and animations appropriate?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
	Is the intricacy of the graphics and animations consistent? (Should have similar levels of detail for similar types of graphics or animation.)	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
Test 7: Video and Audio	Are the audio and video presentations smooth? (Correct audio with video; no audio skips, pops, or background noise; no video shifts or jitters.)	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Do the audio and video controls function correctly?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
	Are the audio and video clips relevant to the lesson in which they are presented?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Do audio clips have equivalent level, tone, and background?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Do video and audio clips play completely and without interruption?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
	Is the audio clearly understandable, with word pronunciation and text remaining consistent throughout?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Is the video easy to see?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Are the video effects (fades, cuts, etc.) appropriate and easy to follow?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable

Tests	Item(s) to be Tested	Results
Test 8: Interactions and Quizzes	Did the courseware confirm correct answers; provide help, correction, or re-direction to content for incorrect answers? (May not apply to all tests or quizzes.)	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Was the score accurate for all quizzes?	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
	Did the Instructional Development Team receive the feedback they should have (i.e., if the Instructional Development Team missed a question about avocadoes, they should receive feedback about avocadoes, not football.)	☐ Performed as Expected ☐ Unexpected Result ☐ Did Not Function ☐ Error ☐ Not Applicable
Test 9: Glossary and Index	Was everything in proper alphabetical order?	☐ Correct ☐ Incorrect

Tests	Item(s) to be Tested	Results
	Were glossary definitions accurate?	☐ Correct ☐ Incorrect
	Did glossary definitions have proper spelling and grammar?	☐ Correct ☐ Incorrect
	Were the index references accurate?	☐ Correct ☐ Incorrect

Task 2: Coordinate Support/Admin Function

Explanation

The support function and admin function are critical to the implementation of courses. The importance of the support function when developing courses cannot be over-emphasized. In many cases, the support function may already exist. Although the support function may already be established, each time a course is developed, the support requirements must be established to ensure that adequate support is available to support the system.

The support function can be defined as those long-range (as well as day-to-day) tasks performed by instructional support organizations in order to implement, operate, and maintain a course.

Often overlooked, the administration function also plays a vital role in the day-to-day operation of a course. While instructional design team members may not be directly involved in any of the administrative tasks, they should still be aware of what is being done by other organizations to support and maintain the course.

Administration is the part of management that performs day-to-day tasks, such as maintaining learner/equipment/supply records, preparing reports, and monitoring schedules.

Process

Support Tasks

The following are examples of support tasks that should be considered:

- Maintain equipment and facilities.
- Supply materials for the instruction.
- Provide services such as audio/visual or publication

Administrative

The following administrative tasks should be considered:

- Provide documents such as course syllabi, training standards, plans of instruction, and instructor and learner materials.
- Maintain personnel, instructional, and equipment records.
- Type reports, letters, and messages.
- Administer learner support, which includes tasks such as processing learner records and mailing courses to learners.
- Administer staff support tasks, such as preparation and maintenance of personnel records and administration of personnel programs.
- Schedule resources (e.g., scheduling learners for classes, establishing equipment utilization schedules).

Task 3: Prepare to Deliver a Course

Explanation

Preparing to deliver a course starts with the initial planning for the course and continues throughout the Analysis, Design, and Development phases of the PADDIE process. When getting ready to implement a course, it is important to ensure that everything is ready to support the course.

Before instruction can be released, ensure the resources are available and scheduled. Instructors and supervisors should be prepared to conduct and administer the instruction, and all required resources including personnel, equipment, facilities, funds, and schedules should be confirmed.

Inadequate planning and preparation can result in complete failure of a course offering. For example, if the instructors have not been qualified in the subject matter, they may not be capable of providing the instruction necessary for the learners. As a result, the learners may not be able to achieve the learning objectives or do the job. These checks are also a quality assessment of the development process and an evaluation of the ISD application to this point.

Process

The Instructional Development Team should consider the following elements when preparing to conduct an Instructor-Led Training (ILT).

Personnel

Prepare personnel to support the course by ensuring:

- Adequate personnel are available, including the Instructional Development Team, instructors, maintenance personnel, learners, etc.
- Instructors and instructors' supervisors know their importance and role in the instructional system.
- Instructors are qualified and certified to teach the courses.
- Instructors are assigned to classes.
- Maintenance personnel are properly trained.
- Learners are scheduled for the classes.

Equipment

The following equipment should be available to support the instruction:

- Instruction, support, and test equipment is available in adequate numbers and in an operational condition. (e.g., laptops, Internet connection).
- Logistic support, including maintenance and spare parts, is available for all instruction, support, and test equipment.
- A "backup" system is available if the primary system is unavailable or not usable.

- Instructor and participant materials are available in adequate quantities to support instruction.
- Instruction and office supplies are available in adequate quantities to support instruction implementation.

Facility

The following facility resources should be available to support the instruction:

- Training and support facilities are available (e.g., breakout rooms).
- Modifications to facilities, such as electrical and air conditioning, are complete.
- Participant support facilities are available and adequate.
- Alternative facilities are available to support a "backup" system, as needed.

Funds

Adequate funds should be available to meet implementation costs and the costs associated with daily operation of the course.

Time

Adequate time should be available for instructors to get certified, if required

Alternate Plans

Not all resources will be available upon request. When requested resources are not available, be prepared to borrow equipment, change the course schedule, or modify the location as needed.

Evaluation Phase – G&T-Funded

Overview

The Evaluation phase is a requirement for Office of Grants and Training (G&T) and non-G&T Instructional Development Teams that are developing a new course or have existing courses that require review and approval to be added to one of G&T's course catalogs.

Tasks

The major tasks in the G&T-funded Evaluation phase include:

1.	**Initial Review**
2.	**Detailed Review**
3.	**Final Review and Validation**

The process steps for each of these tasks vary, depending upon whether the course is G&T and non-G&T-funded.

Task 1: G&T-Funded – Initial Review

Explanation

The purpose of the initial review is to test the course materials with the target audience in the intended environment. The initial review includes approximately 3-5 pilot deliveries, a desk review, and recommended material revisions. Subject Matter Experts (SMEs) are included in the process.

All providers of G&T-approved training are responsible for administering Level 1 and Level 2 evaluations during the pilots, and tracking and reporting the results.

Please use the Level 1 Evaluation – Department of Homeland Security Office of G&T Learner Assessment of Course and Instructors in the RTDC Library.

The Level 2 evaluation is an objective measure of student knowledge, skills, and abilities acquired through training. Training providers are required to develop, administer, track, and report a Level 2 evaluation for each course they offer to the public. The instrument may be either a pre and post-examination, or a post-course practical exercise for performance-level courses that do not lend themselves to a pre-test. Tests or practical exercises must measure the individual, not the class as a whole. The Level 2 evaluation instrument must be submitted at the time that other course materials are submitted for the course review process. The instrument will be evaluated during the course review process, based on its adherence to instructional design principles for testing, and to ensure that test questions or checklists (for post-course practical exercises) map to learning objectives and critical “must-know” aspects of the course.

Process

The following steps are required by G&T:

1. Conduct pilots

   A pilot of the draft course is conducted with a select number of participants and SMEs. The Instructional Development Team will coordinate with the G&T Program Manager on the location, schedule, and delivery of a minimum of three pilot courses. The G&T Program Manager should be in attendance for at least one of the pilots delivered. An Independent third-party (SME), agreed upon by the G&T Program Manager and Instructional Development Team, will be invited to attend and review one of the last pilot deliveries of the course. The number of SMEs invited to attend the course will be based on the complexity of the course being reviewed. The G&T Program Manager will determine the final number of pilots to be delivered based upon SME feedback collected during the evaluations.

2. Submit pilot Level 1 and Level 2 evaluations.

   The Instructional Development Team should use the G&T Level 1 Evaluation – Department of Homeland Security Office of G&T Learner Assessment of Course and Instructors in the Responder Training

Development Center (RTDC) Library. This form is required for G&T-sponsored courses and should be used during the pilots. After each pilot, evaluations, as well as pre and post-assessments, or a post-course practical exercise for performance-level courses that do not lend themselves to a pre-test.

3. Make pilot revisions

   The Instructional Development Team shall make the applicable changes after each pilot delivery.

Resource:

G&T Level 1 Evaluation – Department of Homeland Security Office of G&T Learner Assessment of Course and Instructors in the RTDC Library

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Resource:

Collect sufficient pilot evaluation data for the analysis. Insufficient data will skew the analysis results; possibly leading to incorrect decisions being made. An example of a job aid used to gather internal evaluation data is shown below.

Check	Data Source
	Does the POI/course syllabus reflect the operational course?
	Is the POI/course syllabus current and accurate?
	Does the POI/course syllabus provide adequate guidance?
	Do the lesson plan and POI/course syllabus agree?
	Does the lesson plan reflect what is being taught in the course?
	Is the lesson plan current and accurate?
	Do instructional materials support the lesson plan and POI/course syllabus?
	Do instructional facilities meet instructional requirements?
	Do support facilities meet instructional requirements?
	Does instructional equipment meet instructional requirements?
	Is the instructional equipment adequately maintained?
	Does support equipment meet instructional requirements?
	Are instructors teaching according to the lesson plan?
	Are instructors adequately trained?
	Do tests adequately measure the objectives?
	Is the test data thoroughly analyzed?
	Check grade sheets–are learners meeting standards in the trainers (simulators, part-task)?
	Check grade sheets–are learners completing all elements to stated standards?
	Are failure rates excessive?
	Can improvements be made in the course?

Task 2: G&T-Funded – Detailed Review

Explanation

The detailed review includes the evaluation of materials by a Course Review Board. The purpose of the Course Review Board is to refine the course and materials based upon finding of errors-in-fact from the pilot deliveries and Desk Review. The Course Review Board is also designed to provide an opportunity for further dialog among those involved in the development and success of the course.

Process

The following steps are required during the detailed review:

1. Submit course materials for board review

   Following the Desk Review, the Review Support Team, G&T Program Manager, participating SMEs, course instructor, and invited partners with expertise in the course subject matter will participate in the Course Review Board. A full-length delivery or pilot of the course is not required for this review.

   The Instructional Development Team will deliver complete sets of course materials to the Review Process Support Team for use by the Course Review Board. The exact number of complete sets of course materials will be determined by the Review Process Support Team, based on the needs of the Course Review Board. In addition, the Review Process Support Team will be provided with all course evaluation materials (e.g., feedback comments) and other relevant course development material that the Instructional Development Team compiled during the internal course development process. This provides each member of the Course Review Board an opportunity to gain an extensive body of knowledge prior to the actual review.

2. Participate in the board review

   The Course Review Board facilitator will present a brief history of the course and an overview of the Course Review Board process. The Instructional Development Team will provide an overview of the course content, module by module.

3. Make recommended board review course revisions

   The recommended changes to the course will be recorded by the Responder Program Support Team (RPST) and delivered to the Instructional Development Team. Implementing the revisions is the Instructional Development Team's responsibility.

4. Submit formal reply addressing review revisions

   The Instructional Development Team will submit to the G&T Program Manager a formal reply letter, to address all recommended revisions as documented by the RPST.

Resource:

Course Materials Checklist

Please review the following information to make sure it is included in the materials. Incomplete submissions will not be reviewed.

Materials	Description	
Mission Area	The submitting entity will identify the mission areas(s) of the course and materials submitted. The following mission areas will be used as defined in the National Preparedness Goal and supported by the Target Capabilities List (TCL): Common, Prevent, Protect, Respond, and/or Recover.	
Target Audience	The submitting entity will identify the target audience(s) of the course and materials submitted. The following list of disciplines should be used: fire service, law enforcement, emergency management, emergency medical services, hazardous materials, public works, public health, health care, public safety communications, governmental administrative, cyber security, agriculture security, food security, and private security.	
Course Design Document/Plan of Instruction (POI)	The Course Design Document (CDD) is an outline, or matrix, of the course content. It addresses the training scope, course learning objectives, duration of the training (broken down by module, session, or lesson), resource requirements, instructor-to-learner ratio, and an evaluation strategy, seat time, and course progression diagram. These items are not all-inclusive, but are the minimum categories that should be addressed. A CDD template is provided in the RTDC for Instructor-Led Training (ILT) and Web-Based Training (WBT).	
Training Support Package (TSP)	The TSP includes all of the materials associated with the delivery of the training. The following items should be in	

Materials	Description	
	the TSP: • Instructor Guide, Instructor Outline, Instructor Lesson Plan: The published instructor material that contains course text, and special instructor notes that provide the information needed in order to deliver course material. • Participant Guide: The published learner material that contains the supporting information in booklet, electronic, or handout form that the participant has available for reference. • Audio/Visual Support Materials: Any audio/visual components that are part of any learning module, session, or lesson or that supports the overall training being delivered. • Special Support Materials: Any descriptions of practical exercises, table-top exercises, hands-on exercises, or other material that supports learning objectives.	
Module/Lesson/Topic Content	Training courses should be designed based on a building block approach. Each sub-component in the course should be titled as a module, lesson, or topic and should have an Administration Page that outlines the following: • Scope Statement: A brief description of the content of the module, lesson, or topic. • Terminal Learning Objective (TLO): An action verb statement that outlines what the learner is expected to	

Materials	Description	
	learn or be capable of performing at the conclusion of the module, session, or lesson. There should be only one TLO per module, session, or lesson. • Enabling Learning Objective (ELO): The incremental learning objectives that support the TLO. There should be at least one ELO per module, session, or lesson. Each ELO must be a measurable performance statement that enables the learner to demonstrate achievement of the TLO. • Resource List: A listing of the resources needed to successfully accomplish the module, session, or lesson. • Instructor-to-Learner Ratio: The instructor-to-learner requirement for successful presentation of the material (e.g., 1:25). • Reference List: A listing of all reference materials used to develop the module, session, or lesson. This information may also be included as a bibliography. • Practical Exercise Statement: This describes any exercises associated with the module, session, or lesson. • Evaluation Strategy: This defines the strategy used to evaluate the module, session, or lesson (e.g., written and/or performance tests or assessments).	

Resource:

Timeframe and Procedures for Onsite Reviews.

Note: These timeframes are estimates, and will vary with the complexity of the course and other factors.

Timeframe	Activities
4 months prior to 1st pilot	Receive materials for ISD review to include: 1. CDD (Plan of Instruction (POI)) • Course and module goals and objectives • Methodology • Course logistics (supplies and equipment) • Instructor requirements • Course schedule (agenda) • Course structure 2. Need for the course 3. Instructor qualifications 4. Test questions 5. Pilot plan 6. Appropriate TCL(s) for the course 7. Evaluation plan
Within 14 days working after receipt of ISD materials	CRA will: • Review material for conformance with ADDIE (Analysis, Design, Development, Implementation, Evaluation) Model • Check TLOs and ELOs for proper use of Bloom's Taxonomy • Cross-check test questions with module objectives • Submit report to developer and G&T with findings of review
	Developer and G&T will send Course Review Contractor (CRA) the dates of all pilots
3 weeks prior to 2nd pilot	• Developer will send 5-10 copies of course materials to CRA • CRA will send course materials and comment sheets to selected SMEs and National Domestic Preparedness Consortium (NDPC) members for review

Timeframe	Activities
Within 5 working days post 2nd pilot	• SMEs will submit comments/recommendations to CRA
Within 5 working days of receipt of SME comments	• CRA will compile all comments and send to developer and G&T • A National Incident Management System (NIMS) SME will review for compliancy
	• Developer will make appropriate changes to the course materials based on the comments with G&T approval • Developer will complete the comment sheets with indicating changes that have/have not been made and why
6 weeks prior to onsite review	• Developer, in conjunction with G&T, will provide dates and location for the review to CRA • CRA will work with the developer in making logistical arrangements
4 weeks prior to onsite review	• Developer sends CRA: • Revised course material (5-10 print copies and 1 electronic) • Completed comment sheets • Instructor bios • Marketing plan • Sustainability plan • List of developer onsite review attendees with contact information • List of Federal partners or trade members that will attend the review with contract information
7 working days prior to review	• SMEs and NDPC review revised materials and developer comments • Submit any additional changes or comments regarding the course revisions to CRA
Day of onsite review	• Developer will discuss their course in detail • Developer will provide information about the pilots • Developer will provide participant

Timeframe	Activities
	evaluation information • Developer will provide lessons learned • CRA facilitator will guide discussion based on the SME and NDPC comments and issues • CRA facilitator will guide discussions on marketing, sustainability, and partnerships
Within 5 working days	CRA will submit a final report of the onsite review to G&T and developer

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Resource:

Review Board Questions

The following are some potential questions the review board may ask.

Target Audience

1. Who is the target audience?

Instructor Qualifications

1. How did you select your instructors?

Train the Trainer

1. Discuss the qualifications required for the trainer
2. How will data be collected regarding courses taught by each trainer?
3. How will you ensure the course will be taught as written?

Course Evaluation

1. What were the results from the Pre/Post-Test from the pilots
2. How was the course revised from pilot to pilot?
3. What level is the learning outcome written to?

Marketing the Course

1. What types of materials are developed to market the course?
2. Who and where will information regarding the course be disseminated?
3. How are materials to be disseminated?
4. How will you track how trainees heard about the course?
5. How did you select each marker to deliver the course?
6. How many individuals do you expect to train?

Sustainability

1. Do you have a long-term vision and goal for the course to be

continued?

2. Do you have a method for collecting data that can be used to support the need for the continuation of the course?
3. What has been done to ensure the course will continue, once funding has ended?
4. What organizations, individuals, and agencies have been contacted?
5. Has a plan been developed?
6. What are the components/activities included in the plan?

Collaboration and Partnerships

1. Have key stakeholders been identified? Who are they?
2. What are the benefits to the stakeholders for their participation?
3. Once stakeholder and/or partners have been identified, how are you going to keep in communication with them?
4. What are you going to tell them?
5. What type of commitments are you looking for in the partnership?
6. Is there a need for formalized Memoranda of Understanding (MOUs)? If so, what information should be included?

Task 3: G&T-Funded – Final Review and Validation

Explanation

The Final Review and Validation provides an opportunity for the G&T Program Manager and G&T Training Director to review the final materials and validate prior to adding the course to the G&T Course Catalog.

Process

The following steps are required for the final review and validation:

1. Submit final course materials for G&T approval

   A copy of the final course (including all supporting materials) will be forwarded to the G&T Program Manager for final review and validation. If revisions were made after the Board Review, then the Instructional Development Team will need to submit the final course and supporting materials.

2. Revise course materials, if applicable

   If course revisions are applicable, the G&T Program Manager will notify the Instructional Development Team.

3. Submit the Course Catalog Form, Course Approval Request letter, and revised course materials for final G&T Training Director approval and validation.

   Upon course validation, the G&T Program Manager will present the course to the G&T Training Director for final approval. If revisions were made, the Instructional Development Team is required to submit the revised materials.

4. Add course to the G&T Course Catalog

   Upon final approval from the G&T Training Director, the course information will be placed into the G&T Course Catalog and be available for delivery.

Resource:

Note: The Course Catalog Form is provided in the RTDC Library.

Resource:

Note: A Sample of a Course Approval Request letter is provided in the RTDC Library.

Evaluation Phase – Non-G&T-sponsored

Overview

For questions regarding the Course Review Process please e-mail FirstResponderTraining@dhs.gov. If the course is disapproved or returned for revision as part of the course review process, no G&T funds can be dedicated to delivering the course. Funds may be used to make necessary revisions and for the re-submission to the course review and approval process.

Tasks

The major tasks in the Evaluation phase include:

1.	**Initial Review**
2.	**Detailed Review**
3.	**Final Review and Validation**

Task 1: Initial Review

Explanation

The purpose of the initial review is to ensure the course materials are complete and meet the G&T mission. There are two types of courses that require review:

- **Existing course**: An existing course has already been developed and needs G&T approval to be included in a course catalog.
- **New course**: A new course has been developed with the previous approval of G&T.

Process

Steps 1-3 are required for existing courses, and Step 3 is required for new courses.

1. Review the G&T Course Catalog to ensure the course being submitted for review is not a duplication of an already certified G&T or approved State or Federal offering.
2. The State Administrative Agency or Territory Point of Contact (SAA/TPOC) submits a *Request Addition to the State/Federal-sponsored Course Catalog Web* form (existing Courses only) to see if the course meets the G&T mission.

   The *Addition to the State/federal-sponsored Course Catalog* Web form can be accessed in the RTDC Library. This Web form was already submitted during the Confirm stage for the development of a new course.
3. After a preliminary review to ensure that the proposed training course is within the G&T mission scope, the SAA/TPOC or Federal POC will be invited by the G&T Training Division to complete and print the appropriate Course Review and Approval Request Web form, and send it with all required training materials to the G&T Preparedness Officer (PO) (For State-sponsored submissions) or the G&T Training Division (For Federal Department/Agency-sponsored submissions), who will conduct a review to ensure the training course and materials are complete and include what is outlined in the Course Materials Checklist in the resource section below.

   The G&T PO (for State-sponsored submissions) or G&T Training Division (for Federal-sponsored submissions) will verify the contents of the submission and only if it complies with the specified requirements will the request for approval of the course and supporting materials be forwarded for further review.

Note: Incomplete submissions will not be reviewed. The submitting SAA/TPOC or Federal POC will be contacted about the incompleteness with the potential of all materials being returned. If the course and supporting materials are returned, the process will be suspended. Once the course and

supporting materials are resubmitted, the materials will be reviewed for completeness.

The G&T Training Division (TD) representative will review the materials for completeness. If all of the course information is included, the G&T TD representative will forward the Request for Course and Approval form with course materials to the appropriate Independent Third Party Subject Matter Experts (SMEs). The SMEs will have the subject matter expertise to review the content and materials for appropriateness.

Note: This task also applies to AV portions of training materials.

Resource:

Course Materials Checklist

The SAA/TPOC or Federal POC will be invited by the G&T Training Division to complete and print the appropriate Course Review and Approval Request Web form, and send it with all required training materials to the G&T Preparedness Officer (PO) (for State-sponsored submissions) or the G&T Training Division (for Federal Agency-sponsored submissions). The recipient will conduct a review to ensure that the training course materials include the information below. Please review the following information to make sure it is included in the materials. Incomplete submissions will not be reviewed.

Materials	Description	
Mission Area	The submitting entity will identify the mission areas(s) of the course and materials submitted. The following mission areas will be used as defined in the National Preparedness Goal and supported by the TCL: Common, Prevent, Protect, Respond, and/or Recover.	
Target Audience	The submitting entity will identify the target audience(s) of the course and materials submitted. The following list of disciplines should be used: fire service, law enforcement, emergency management, emergency medical services, hazardous materials, public works, public health, health care, public safety communications, governmental administrative, cyber security, agriculture security, food security, and private security.	

Materials	Description	
Course Design Document	The Course Design Document (CDD) is an outline, or matrix, of the course content. It addresses the training scope, course learning objectives, duration of the training (broken down by module, session, or lesson), resource requirements, instructor-to-learner ratio, and an evaluation strategy, seat time, and course progression diagram. These items are not all-inclusive, but are the minimum categories that should be addressed. A CDD template is provided in the RTDC for Instructor-Led Training (ILT) and Web-based Training (WBT).	
Training Support Package (TSP)	The TSP includes all of the materials associated with the delivery of the training. The following items should be included in the TSP: • Instructor Guide/Instructor • Outline/Instructor Lesson Plan: The published instructor material that contains course text and special instructor notes that provide the information needed in order to deliver course material. • Participant Guide: The published learner material that contains the supporting information in booklet, electronic, or handout form, and that the participant has available for reference. • Audio/Visual Support Materials: Any audio/visual components that are part of any learning module, session, or lesson or that support the overall training being delivered. • Special Support Materials: Any descriptions of practical exercises, table-top	

Materials	Description	
	exercises, hands-on exercises, or other material that supports learning objectives.	
Module/Lesson/Topic Content	Training courses should be designed based on a building block approach. Each sub-component in the course should be titled as a module, lesson, or topic and should have an Administration Page that outlines the following: • Scope Statement: A brief description of the content of the module, lesson, or topic. • Terminal Learning Objective (TLO): An action verb statement that outlines what the learner is expected to learn or be capable of performing at the conclusion of the module, session, or lesson. There should be only one TLO per module, session, or lesson. • Enabling Learning Objective (ELO): The incremental learning objectives that support the TLO. There should be at least one ELO per module, session, or lesson. Each ELO must be a measurable performance statement that enables the learner to demonstrate achievement of the TLO. • Resource List: A listing of the resources needed to successfully accomplish the module, session, or lesson. • Instructor-to-Learner Ratio: The instructor-to-learner requirement for successful presentation of the material (e.g., 1:25).	

Materials	Description	
	• Reference List: A listing of all reference materials used to develop the module, session, or lesson. This information may also be included as a bibliography. • Practical Exercise Statement: This describes any exercises associated with the module, session, or lesson. • Evaluation Strategy: This defines the strategy used to evaluate the module, session, or lesson (e.g., written and/or performance tests or assessments).	

Task 2: Detailed Review

Explanation	The purpose of the detailed review is for an independent Third Party (e.g., Subject Matter Expert (SME)) review of materials/courseware for accuracy, appropriateness, and compliance.
Process	There is no action step required at this time. The Independent Third Party SMEs will be assigned to provide detailed course content and materials review. The SMEs will perform the review of course materials with the aid of an Independent Third Party Scorecard to determine if the course content and materials are consistent with G&T standards. Upon completion of the review, the SMEs will submit a recommendation to the G&T TD representative for approval or denial of course materials. All supporting information will be documented on the Course Evaluation, Observations, and Findings form. If the course and supporting materials are returned, the process will be suspended and begin again with the Initial Review – Step 3.

Task 3: Final Review and Validation

Explanation	The Final Review and Validation provides an opportunity for the G&T Training Director to review the final materials and review the findings from the Independent Third Party Review prior to adding the course to the G&T Course Catalog.
Process	There is no action step required. The G&T TD will review the SME's findings and will produce a Report of Review. The G&T Training Division (TD) representative will notify the G&T Preparedness Officer and the appropriate SAA/TPOC or Federal agency POC of the outcome, and provide either a letter of approval or a letter of disapproval. Approved courses will be added to the appropriate catalog (State or Federal-sponsored).

Enable Stage

Introduction

ENABLE is the fourth stage in the Responder Training Development Center (RTDC). The ENABLE stage is centered on the Sustainment phase. Sustainment is not officially part of the Planning, Analysis, Design, Development, Implementation, and Evaluation (PADDIE) process, but is required for the G&T-funded (funded by the Office of Grants and Training) and non-G&T-sponsored courses. The Sustainment phase is similar to the review cycle in Phase 5: Evaluation of the PADDIE process.

Three years after the original validation and approval of the training course and supporting materials, and every three years subsequent thereafter, G&T will engage a group of Subject Matter Experts (SMEs) to review the accuracy and appropriateness of the information for G&T-funded and non-G&T-sponsored courses. The purpose of the review cycle is ensure content is still applicable and current.

Review and Approval Requirements

During the ENABLE stage the following are requirements:

G&T

- Submit course materials for Board Review
- Course Revisions, if applicable
- Course Validation

Non-G&T

- Submit Course Review and Approval Request Form - Federal/State-sponsored (there may be a new form being developed)
- Submit courseware/materials for review

Sustainment Phase – G&T-sponsored

Overview

All courses must be reviewed and approved again by the Office of Grants and Training (G&T) every three years to remain in a G&T course catalog. The purpose of the review cycle is make sure content is still applicable and current.

Tasks

The major tasks in the Sustainment phase include:

1.	**Detailed Review**
2.	**Final Review and Validation**

Task 1: Detailed Review

Explanation

The detailed review includes the evaluation of materials by a Course Review Board. The purpose of the Course Review Board is to refine the course and materials based upon finding of errors-in-fact from the level 1 and level 2 evaluations. The Course Review Board is also designed to provide an opportunity for further dialog among those involved in the development and success of the training program.

Process

The following steps are required during the detailed review:

1. Submit course materials for board review

   The Responder Program Support Team (RPST), G&T Program Manager, participating SMEs, course instructor, and invited partners with expertise in the course subject matter will participate in the Course Review Board. A full-length delivery of the course is not required for this review.

   The Instructional Development Team will deliver complete sets of course materials to the RPST for use by the Course Review Board. The exact number of complete sets of course materials will be determined by the RPST, based on the needs of the Course Review Board. In addition, the RPST will be provided with all course evaluation materials (e.g., feedback comments) and other relevant course development material compiled by the Instructional Development Team. This provides each member of the Course Review Board an opportunity to gain an extensive body of knowledge prior to actual review.

2. Participate in board review

   The Course Review Board facilitator will present a brief history of the course and an overview of the Course Review Board process. The Instructional Development Team will provide an overview of the course content, module by module.

3. Make recommended board review course revisions

   The recommended changes to the course will be recorded by the RPST and delivered to the Instructional Development Team. Implementations of the revisions are the responsibility of the Instructional Development Team.

4. Submit formal reply addressing review revisions

   The Instructional Development Team will submit a formal reply letter to the G&T Program Manager to address all recommended revisions, as documented by the RPST.

Resource:

G&T Level 1 Evaluation – Department of Homeland Security Office of G&T Learner Assessment of Course and Instructors in the RTDC Library.

Resource:

Course Materials Checklist

Please review the following information to make sure it is included in the materials. Incomplete submissions will not be reviewed.

Materials	Description	✓
Mission Area	The submitting entity will identify the mission areas(s) of the course and materials submitted. The following mission areas will be used as defined in the National Preparedness Goal and supported by the Target Capabilities List (TCL): Common, Prevent, Protect, Respond, and/or Recover.	
Target Audience	The submitting entity will identify the target audience(s) of the course and materials submitted. The following list of disciplines should be used: fire service, law enforcement, emergency management, emergency medical services, hazardous materials, public works, public health, health care, public safety communications, governmental administrative, cyber security, agriculture security, food security, and private security.	
Course Design Document	The Course Design Document (CDD) is an outline, or matrix, of the course content. It addresses the training scope, course learning objectives, duration of the training (broken down by module, session, or lesson,) resource requirements, instructor-to-learner ratio, and an evaluation strategy, seat time, and course progression diagram. These items are not all-inclusive, but are the minimum	

Materials	Description	
	categories that should be addressed. A CDD template is provided in the RTDC for Instructor-Led Training (ILT) and Web-based Training (WBT).	
Training Support Package (TSP)	The TSP includes all of the materials associated with the delivery of the training. Items that should be in the TSP are as follows: • Instructor Guide, Instructor Outline, Instructor Lesson Plan: The published instructor material that contains course text and special instructor notes that provide the information needed in order to deliver course material. • Participant Guide: The published learner material that contains the supporting information in booklet, electronic, or handout form that the participant has available for reference. • Audio/Visual Support Materials: Any audio/visual components that are part of any learning module, session, or lesson, or that support the overall training being delivered. • Special Support Materials: Any descriptions of practical exercises, table-top exercises, hands-on exercises, or other material that supports learning objectives.	
Module/Lesson/Topic Content	Training courses should be designed based on a building block approach. Each sub-component in the course should be titled as a module, lesson, or topic, and should have an Administration Page that	

Materials	Description	
	outlines the following: • Scope Statement: A brief description of the content of the module, lesson, or topic. • Terminal Learning Objective (TLO): An action verb statement that outlines what the learner is expected to learn or be capable of performing at the conclusion of the module, session, or lesson. There should be only one TLO per module, session, or lesson. • Enabling Learning Objective (ELO): The incremental learning objectives that support the TLO. There should be at least one ELO per module, session, or lesson. Each ELO must be a measurable performance statement that enables the learner to demonstrate achievement of the TLO. • Resource List: A listing of the resources needed to successfully accomplish the module, session, or lesson. • Instructor-to-Learner Ratio: The instructor-to-learner requirement for successful presentation of the material (e.g., 1:25). • Reference List: A listing of all reference materials used to develop the module, session, or lesson. This information may also be included as a bibliography. • Practical Exercise Statement: This describes any exercises associated with the module,	

Materials	Description	
	session, or lesson. • Evaluation Strategy: This defines the strategy used to evaluate the module, session, or lesson (e.g., written and/or performance tests or assessments).	

Task 2: Final Review and Validation

Explanation

The final review and validation provides an opportunity for the G&T Program Manager and G&T Training Director to review the final materials and validate prior to making the decision to keep the course to the G&T Course Catalog.

Process

The following steps are required for the final review and validation.

1. Submit final course materials for G&T approval

   A copy of the final course (including all supporting materials) will be forwarded to the G&T Program Manager for final review and validation.

2. Revise course materials, if applicable

   If course revisions are applicable, the G&T Program Manager will notify the Instructional Development Team.

3. Submit the revised course materials for final G&T Training Director approval and validation

   Upon course validation, the G&T Program Manager will present the course to the G&T Training Director for final approval. If revisions were made, the Instructional Development Team is required to submit the revised materials.

4. Course remains in G&T Course Catalog

   Upon final approval from the G&T Training Director, the course information will remain in the G&T Course Catalog and be available for delivery.

Sustainment Phase – Non-G&T-sponsored

Overview

Each course must be reviewed every three years in order to remain in the Office of Grants and Training (G&T) Course Catalog. If a course is disapproved or returned for revision as part of the course review process, non-G&T funds can be dedicated to delivering the course. Funds may be used to make necessary revisions and for the re-submission to the course review and approval process. FirstResponderTraining@dhs.gov.

Tasks

The major tasks in the Sustainment phase for non-G&T-sponsored courses include:

1.	**Initial Review**
2.	**Detailed Review**
3.	**Final Review and Validation**

Task 1: Initial Review

Explanation

The purpose of the initial review is to ensure the course materials are complete and continue to meet the G&T mission.

Process

1. The State Administrative Agency/Territory Point of Contact (SAA/TPOC) or Federal Point of Contact (POC) will be invited by the G&T Training Division to complete and print the appropriate Course Review and Approval Request Web form (a new Web form will be created), and send it with all required training materials to the G&T Preparedness Officer (For State-sponsored submissions) or the G&T Training Division (For Federal Department/Agency sponsored submissions) who will conduct a review to ensure the training course and materials are complete and include what is outlined in the Course Materials Checklist in the resource section below.
2. The G&T Preparedness Officer (PO) (for State-sponsored submissions) or G&T Training Division (for Federal-sponsored Submissions) will verify the contents of the submission, and only if it complies with the specified requirements will the request for approval of the course and supporting materials be forwarded for further review.
3. Incomplete submissions will not be reviewed. The submitting SAA/TPOC or Federal POC will be contacted about the incompleteness with the potential of all materials being returned. If the course and supporting materials are returned, the process will be suspended. Once the course and supporting materials are resubmitted, the materials will be reviewed for completeness again.
4. The G&T Training Division representative will review the materials for completeness. If all of the course information is included, the G&T Training Division (TD) representative will forward the Request for Course and Approval form with course materials to the appropriate Independent Third Party Subject Matter Experts (SMEs). The SMEs will have the subject matter expertise to review the content and materials for appropriateness.

Resource:

Course Materials Checklist

The SAA/TPOC or Federal POC will be invited by the G&T Training Division to complete and print the appropriate Course Review and Approval Request Web form, and send it with all required training materials to the G&T Preparedness Officer (PO) (for State-sponsored submissions) or the G&T

Training Division (for Federal Agency-sponsored submissions). The recipient will conduct a review to ensure that the training course materials include the information below. Please review the following information to make sure it is included in the materials. Incomplete submissions will not be reviewed.

Materials	Description	✓
Mission Area	The submitting entity will identify the mission areas(s) of the course and materials submitted. The following mission areas will be used as defined in the National Preparedness Goal and supported by the TCL: Common, Prevent, Protect, Respond, and/or Recover.	
Target Audience	The submitting entity will identify the target audience(s) of the course and materials submitted. The following list of disciplines should be used: fire service, law enforcement, emergency management, emergency medical services, hazardous materials, public works, public health, health care, public safety communications, governmental administrative, cyber security, agriculture security, food security, and private security.	
Course Design Document (CDD)	The CDD is an outline, or matrix, of the course content. It addresses the scope of the training, course learning objectives, duration of the training (broken down by module, session, or lesson), resource requirements, instructor-to-learner ratio, and an evaluation strategy, seat time, and course progression diagram. These items are not all-inclusive, but are the minimum categories that should be addressed. A CDD template is provided in the RTDC for ILT and WBT.	
Training Support Package (TSP)	The TSP includes all of the materials associated with the delivery of the training course. Items that should be in the TSP are as follows: • Instructor Guide, Instructor Outline, Instructor Lesson Plan: The published instructor material that contains course	

Materials	Description	
	text and special instructor notes that provide the information needed in order to deliver course material. • Participant Guide: The published learner material that contains the supporting information in booklet, electronic, or handout form, and that the participant has available for reference. • Audio/Visual Support Materials: Any audio/visual components that are part of any learning module, session, or lesson, or that supports the overall training being delivered. • Special Support Materials: Any descriptions of practical exercises, table-top exercises, hands-on exercises, or other material that supports learning objectives.	
Module/Lesson/Topic Content	Training courses should be designed based on a building block approach. Each sub-component in the course should be titled as a module, lesson, or topic, and should have a Lesson Administrative Page (LAP) that outlines the following: • Scope Statement: A brief description of the content of the module, session, or lesson. • Terminal Learning Objectives (TLO): An action verb statement that outlines what the learner is expected to learn or be capable of performing at the conclusion of the module, session, or lesson. There should be only	

Materials	Description	
	one TLO per module, session, or lesson. • ELO: The incremental learning objectives that support the TLO. There should be at least one ELO per module, session, or lesson. Each ELO must be a measurable performance statement that enables the learner to demonstrate achievement of the TLO. • Resource List: A listing of the resources needed to successfully accomplish the module, session, or lesson. • Instructor-to-Learner Ratio: The instructor-to-learner requirement for successful presentation of the material (e.g., 1:25). • Reference List: A listing of all reference materials used to develop the module, session, or lesson. This information may also be included as a bibliography. • Practical Exercise Statement: This describes any exercises associated with the module, session, or lesson. • Evaluation Strategy: This defines the strategy used to evaluate the module, session, or lesson (e.g., written and/or performance tests or assessments.)	

Task 2: Detailed Review

Explanation	The purpose of the detailed review is for an Independent Third Party SMEs review of materials/courseware for accuracy, appropriateness, and compliance.
Process	There is no action step required for this task. Independent Third Party SMEs will be assigned to provide detailed course content and materials review. The SMEs will perform the review of course materials with the aid of an Independent Third Party Scorecard to determine if the course content and materials are consistent with G&T standards. Upon completion of the review, the SMEs will submit a recommendation to the G&T Training Director for approval or denial of courseware/materials. All supporting information will be documented on the Course Evaluation, Observations, and Findings form. If the course and supporting materials are returned, the process will be suspended and begin again with the Initial Review.

Task 3: Final Review and Validation

Explanation	The final review and validation provides an opportunity for the G&T Training Director to review the final materials and review the findings from the Independent Third Party Review prior to making the decision to keep the course in the G&T Course Catalog.
Process	There is no action step required for this task. The G&T Training Director will review the SME's findings and will produce a Report of Review. The G&T Training Director representative will notify the G&T PO and the appropriate SAA/TPOC or Federal agency POC of the outcome, and provide either a letter of approval or a letter of disapproval. Approved courses will remain in the appropriate catalog (State or Federal-sponsored).

PADDIE WBT Checklist

Course Name:
ISD: **Date:**

Please put the date the Instructional Development Team completed a task in the right hand column.

Phase	Task	Date Completed
Phase 0: Pre-Planning	Conduct Needs Assessment.	
	Review and Approval of Needs Assessment form by G&T.	
	Define Project Scope.	
	Determine Resources.	
	Create Project Schedule.	
	Determine Budget.	

Comments:

Date:

Phase 1: Analysis	Learner Analysis (Target Population).	
	Environmental Analysis.	
	Job and Task Analysis, if applicable.	
	Content Analysis, if applicable.	
	Learning Analysis.	
	Media/Delivery Analysis, if applicable.	
	Review and Approval of Planning/Analysis form by G&T.	

Comments:

Date:

Phase 2: Design	Write Learning Objectives.	
	Develop Content Outline.	
	Determine Design Strategy.	
	Develop Instructional Strategies.	
	Chart Course Progression.	
	Determine Assessment Strategy.	
	Determine Evaluation Strategy.	
	Review Style Guide.	
	Document Technical Functionality.	
	Write Course Design Document (CDD).	
	Review and Approval of CDD by G&T.	

Comments:

Date:

Phase 3: Development	Develop Prototype. Storyboards (1 lesson). Program Courseware (1lesson).	
	Review and Approval of Prototype by G&T.	
	Develop Draft Course. Storyboards (All Lessons). Program Courseware (All Lessons).	
	Review and Approval of Draft Course by G&T.	

Comments:

Date:

Phase 4: Implementation	Integrate and Test Courseware.	
	Coordinate the Support/Admin Function.	
	Prepare to Conduct Course.	

Phase 5: Evaluation	Initial Review and Approval.	
	Detailed Review and Approval.	
	Final Review and Validation.	
Sustainment	Detailed Review and Approval.	
	Final Review and Validation.	

Comments:

Date:

Course Name:
ISD: **Date:**

PADDIE ILT Checklist

Please put the date the Instructional Development Team completed a task in the right hand column.

Phase	Task	Date Completed
Phase 0: Pre-Planning	Conduct Needs Assessment.	
	Review and Approval of Needs Assessment form by G&T.	
	Define Project Scope.	
	Determine Resources.	
	Create Project Schedule.	
	Determine Budget.	

Comments:

Date:

Phase 1: Analysis	Learner Analysis (Target Population).	
	Environmental Analysis.	
	Job and Task Analysis, if applicable.	
	Content Analysis, if applicable.	
	Learning Analysis.	
	Media/Delivery Analysis, if applicable.	
	Review and Approval of Planning/Analysis form by G&T.	

Comments:

Date:

Phase 2: Design	Write Learning Objectives.	
	Develop Content Outline.	
	Determine Design Strategy.	
	Develop Instructional Strategies.	
	Determine Assessment Strategy.	
	Determine Evaluation Strategy.	
	Review Style Guide.	
	Write Course Design Document (CDD).	
	Review and Approval of CDD by G&T.	

Comments:

Date:

Phase 3: Development	Develop Prototype. Participant Guide (1 lesson). Instructor Guide (1 lesson). Supporting Materials.	
	Review and Approval of Prototype by G&T.	
	Develop Draft Course. Participant Guide (All Lessons). Instructor Guide (All Lessons).	
	Review and Approval of Draft Course by G&T.	

Comments:

Date:

Phase 4: Implementation	Integrate and Test Courseware.	
	Coordinate the Support/Admin Function.	

	Prepare to Conduct Course.	
Phase 5: Evaluation	Initial Review and Approval.	
	Detailed Review and Approval.	
	Final Review and Validation.	
Sustainment	Detailed Review and Approval.	
	Final Review and Validation.	

Comments:

Date:

References

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