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**A Procedure for Development of Structured
Vignette Training Exercises for Small Groups**

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Armored Forces Research Unit

U.S. Army Research Institute for the Behavioral and Social Sciences

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**EDGAR M. JOHNSON
Director**

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Technical review by

LTC Emmet Holley, TSM for Force XXI
Carl Lickteig, ARI

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A Procedure for Development of Structured Vignette Training Exercises for Small Groups

Charlotte H. Campbell, Laura A. Ford, and Roy C. Campbell
Human Resources Research Organization

Kathleen A. Quinkert
U.S. Army Research Institute

Armored Forces Research Unit
Barbara A. Black, Chief

U.S. Army Research Institute for the Behavioral and Social Sciences
5001 Eisenhower Avenue, Alexandria, Virginia 22333-5600

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FOREWORD

Within today's Army, two conflicting forces are at work: decreasing resources for training and increasing demands for highly trained and proficient personnel. Force reductions and other cost efficiencies require the Army to reduce its expenditures for high-fidelity institutional and field training. At the same time, introduction of more complex systems and equipment, changes to doctrine and organization, and a changing geopolitical landscape require that training be more committed to quality and efficiency than ever before.

To meet these challenges, Congress provided Fiscal Year 1994 research and development funding for the establishment of the Force XXI Training Program (formerly known as the Virtual Brigade Training Program) at Fort Knox, Kentucky. The intent of this program is to explore and utilize simulation technologies and instructional principles to create structured training programs that fully leverage available resources in providing efficient, effective training to brigade staffs. The focus is on preparing the Army of the 21st century and ensuring that today's Army is sufficiently ready to provide the foundation for continuing change and modernization.

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI), Armored Forces Research Unit (AFRU) at Fort Knox, the Force XXI Training Program, and the U.S. Army Armor Center (USAARMC) joined forces to sponsor training research and development (R&D) for one element of the Congressionally-mandated effort: simulation-based training for the conventional mounted brigade. The R&D work was performed under a project known as the *Combined Arms Operations at Brigade Level, Realistically Achieved Through Simulation (COBRAS)*.

This research product presents a procedure for developing structured training exercises for small groups. The guide incorporates experience and lessons learned during the COBRAS vignette exercise development work and includes more detailed discussion of the particular characteristics of structured vignette training. This guidance is designed for use by training designers and developers, as well as by training program reviewers, evaluators, and managers.

ZITA M. SIMUTIS
Technical Director

A PROCEDURE FOR DEVELOPMENT OF STRUCTURED VIGNETTE TRAINING EXERCISES FOR SMALL GROUPS

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PREFACE

This guide is intended to serve as an aid for training developers, training reviewers, training evaluators, and training managers. It addresses one segment of a broad range of training development projects that all fall under the general heading of "structured training."

The work that led to the codification of this methodology was performed under the sponsorship of the U. S. Army Research Institute for the Behavioral and Social Sciences (ARI), Armored Forces Research Unit (AFRU), Fort Knox, on a project entitled *Combined Arms Operations at Brigade Level, Realistically Achieved through Simulation (COBRAS)*. The performing contractor consortium included the Human Resources Research Organization (HumRRO, prime contractor), Hughes Training, Inc. (now Raytheon), BDM International (now TRW), and PRC Incorporated (now Litton-PRC).

The procedure described in this guide addresses specific training and research challenges. While the process will generalize to other conditions, it will require the creative developer to modify the specific products, reviews, and development processes to match the specific circumstances found in other efforts. This guide will help the developers understand the issues and challenges they will face and must resolve in their training programs. It will also be of assistance to reviewers, evaluators, and managers, who will be better equipped to perform their specific roles by understanding the rationale underlying small-group exercise construction.

A PROCEDURE FOR DEVELOPMENT OF STRUCTURED VIGNETTE TRAINING EXERCISES FOR SMALL GROUPS

INTRODUCTION

Purpose

This procedure for development of structured small-group exercises describes an approach based on the *Systems Approach to Training* (SAT) (Department of the Army [DA], 1988). The procedure is a specific application of a more general methodology for development of structured simulation-based training (Campbell & Deter, 1997). Specifically, it addresses:

- how to focus training on key critical objectives and performance considerations,
- how to constrain a small group exercise so that a select group of participants can be targeted,
- how to “slice” a single event out of the larger scenario, and
- how to keep user preparation time and materials to a minimum.

With this guide in hand, training program evaluators and prospective users of the process can understand the basic tenets of the procedure and adapt it for their own needs.

Definition

In the development work on which this guide is based, a vignette is defined as follows:

A vignette is a brief, structured, task-based training exercise for the members of a small team.

Contents and Organization of This Guide

The development procedure is presented in four sections:

- The following section, *Background*, reviews the origins of this vignette development procedure and some of the important concepts associated with structured training.
- The second section, *Overview*, describes the vignette development approach, delineating its relationship to the SAT (DA, 1988).
- The third section, *Procedure for Development of Vignettes*, is a step-by-step presentation of the process. It has the following features:
 - Describes the activities to be followed in developing the vignette components, such as scenarios and trainer materials.
 - Details review and formative evaluation requirements.
 - Describes the purpose and characteristics of each component of the vignette training support package (TSP).
- The fourth section, *Lessons Learned*, summarizes key considerations in vignette development.

Audience for the Guide

In following the process described in the guide, various objectives for various users may be met:

- *Training developers* will be confronted with most of the critical considerations that must be faced in designing and developing structured small group training programs.
- *Reviewers* of training program development projects or of TSPs will find that the procedure outlines the issues that should be addressed in development and accommodated in the TSP.
- *Evaluators* of training programs and TSPs will be able to identify the probable causes of weaknesses in programs by tracing through the critical development steps.
- *Managers* who oversee the development and implementation of structured training programs will be better equipped to modify the developmental process and elements of the TSP, through a full understanding of the procedure.

The approach outlined in this guide is directed primarily to training developers.

BACKGROUND

During 1993-1995, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) sponsored a research and development effort to construct structured simulation-based training exercises for multiple echelons of the armored force. The finished program is known as the *Virtual Training Program (VTP)*¹. In addition to the TSP materials, project personnel also produced a report entitled *Methodology for Development of Structured Simulation-Based Training* (Campbell, Campbell, Sanders, Flynn, & Myers, 1995). That methodology is a step-by-step procedure for designing and developing training materials and scenarios² in simulation environments³.

¹ The program was originally known as the Reserve Component Virtual Training Program (RCVTP). As active units and schoolhouse training managers became interested in using the program, the "Reserve Component" (RC) designator was dropped. The work was performed as an ARI project entitled *Simulation-Based Training Multiechelon Training Program for Armor Units (SIMUTA)*, reported in Hoffman, Graves, Koger, Flynn, and Sever (1995). Additional VTP work was performed in the project *Expansion of the Virtual Training Program (SIMUTA-B)*, reported in Graves and Myers (1997).

² The methodology itself is not specific to any particular technology, type of unit, unit level, or mission. It is, however, particularly applicable to the development of collective military training exercises that focus on command and staff skills in planning and execution.

³ In general, simulations are classified as constructive, virtual or live. "Constructive simulations" are those where the technology represents actions and consequences, but does not replicate the full physical environment. "Virtual simulations" are those in which users actually interact with a replication of the physical environment, in much the same way that they would with the real environment. "Live simulation" refers to those situations where the real environment is reproduced in a less than full mode. Whether or not constructive or virtual simulation technologies are used, all performance practice training involves some degree of live simulation, in that it involves real people in less-than-real conditions. In this report, when the term "simulation" is used, it will refer to constructive and/or virtual (i.e., technology-based) simulation.

Subsequent to its use in developing the VTP, the methodology (Campbell et al., 1995) was used in the construction of a wide variety of structured, simulation-based training programs for different echelons, missions, and simulations. Adaptations were made as necessary to customize the methodology for each usage. The basic methodology, however, has proven to be robust with respect to differences in environments and training audience.

One of the most recently completed of these programs is the *Force XXI Training Program: Combined Arms Operations at Brigade Level, Realistically Achieved Through Simulation*, usually referred to as *COBRAS*. This ARI project developed training exercises for selected members of a conventionally equipped, heavy, mounted brigade (bde). The training development focused on three missions (movement to contact, area defense, and deliberate attack) and on all phases of those missions (plan, prepare, and execute, including consolidation and reorganization).⁴

One component of the COBRAS project is the Brigade Staff Vignettes. These vignettes are a series of 24 independent training exercises designed for brigade staff use. The vignettes provide concentrated practice on specific skills and behaviors for a small group of the brigade staff training audience, usually with low resource requirements (relative to full field exercises). Feedback is focused on the interactions within the small group, allowing the exercise to function as a “bridge” training opportunity between individual and collective training. The experience and lessons learned in performing this research and development effort are the basis for the procedure described in this guide.

The vignette work has roots that go deeper than the VTP methodology development and COBRAS expansion of the methodology. Other ARI work (Lickteig, 1991; Lickteig & Emery, 1994) explored the use of vignettes for training and assessing tactical command and control skills. These were much shorter drills than the COBRAS vignettes (generally 10 minutes in length) and focused on leader behaviors in sorting out and reacting to complex message sets. However, the procedure they describe for development of those vignettes is similar to the procedure described in this guide. Both procedure descriptions have a common overall goal: to stabilize extraneous variables impacting performance and standardize the important cues, in order to provide opportunities for performance of selected tasks and objectives.

Structured Training Characteristics

A comprehensive definition of structured training is presented in Figure 1. The key features of structured training are:

- a focus on performance of critical tasks, selected on the basis of a needs analysis,
- standardized exercise control to ensure practice of the selected tasks,
- standardized feedback to correct and reinforce performance on the selected tasks, and
- exercise support within available resources by means of comprehensive training materials.

⁴ The COBRAS exercises and TSPs and the development process are more fully described in the project report: *Combined Arms Operations at Brigade Level, Realistically Achieved Through Simulation I (COBRAS I) Project: Development and Lessons Learned* (Graves, Campbell, Deter, & Quinkert, 1997).

As shown in Figure 1, the needs analysis leads into preparation of the supporting materials that comprise the TSP. The TSP provides three kinds of tools:

- the scenario specifications and tactical materials that provide the context for the exercise,
- the support guides that provide the cues to control the *training process* (i.e., the behaviors and activities of the trainers in controlling the flow of the exercise), and
- the training objectives, observation guides, and associated after action review (AAR) materials that support the *learning process* (i.e., the activities of the training participants and the means for providing feedback to them).

Vignettes that are produced according to the development procedure described here will incorporate these features. The procedure also describes considerations in using virtual, constructive, and/or live simulation capabilities. When used appropriately, simulations can provide tactically realistic scenarios, causing the unit to be immersed in an environment that elicits performance of the critical tasks.

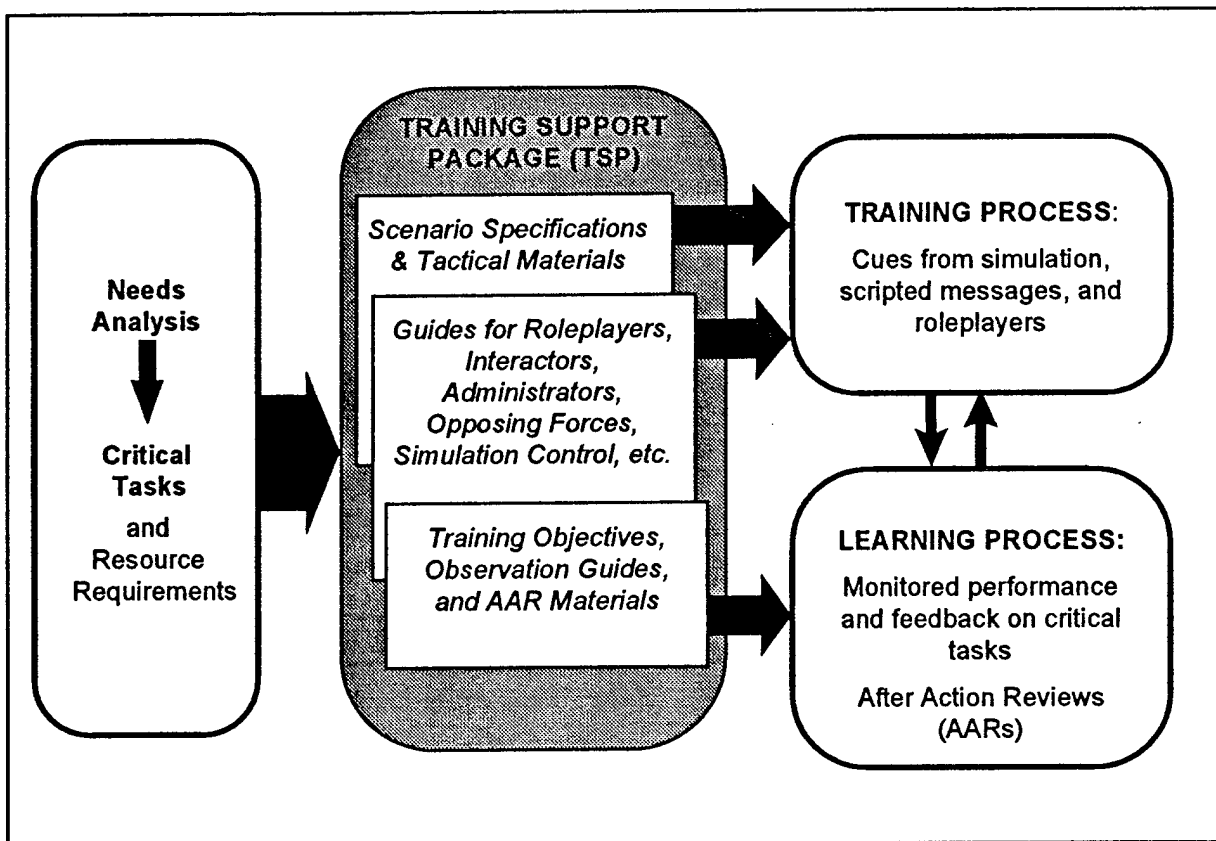


Figure 1. The framework of structured training.

The training focus in structured training is maintained by means of careful attention to standardized implementation. That standardization is achieved in adherence to the following guidelines:

- Conditions that provide the setting for the training should be precisely defined and crafted to be realistic for task performance.
- Selected tasks that form the training objectives should be doctrinally correct. Whether or not they are drawn from published documentation, there should be acceptance of the technical accuracy of the tasks and how they must be performed.
- Training should take advantage of and work within the capabilities of the selected simulator/simulation.
- Training materials should allow the unit to focus on participating in the training. Participants should not spend time on designing and developing the training, nor on observing and evaluating their own performance.
- Materials should permit standardized (i.e., replicable) implementation of the program, so that the selected tasks are cued consistently.
- Training should make use of performance observers, and materials should direct their attention to the key training objectives.
- Training should be designed to fit within the typical unit's time and resource constraints, so that local modifications are minimal.
- Training materials should be flexible, so that different situations can be accommodated, but should also include warnings and explanations about what should *not* be modified.

Expanded Definition of Vignettes

Within the overall definition of structured training exercises, a more restricted definition applies to vignettes. In contrast to most structured exercises, vignettes are generally more limited in audience, in scope, and in resources required. As stated earlier, a vignette is defined as follows:

A vignette is a brief, structured, task-based training exercise for the members of a small team.

A vignette has the following characteristics:

- Focused on the performance of a small group of selected individuals working together toward a common goal or outcome (i.e., a team)
- Focused on practicing the performance of a single well-defined task that is part of a larger situation
- Designed for execution under limited resource conditions --
 - Exportable (with or without dedicated observer/controller [O/C] team)
 - Minimal user preparation time (2-8 hours) and execution time (4-8 hours)
 - Little or no equipment requirement, except simulation.

COBRAS vignettes were developed for a military context, specifically, the staff of a combined arms brigade. The procedure may be translated for other uses, either military or non-military. However, because that translation and subsequent application have not yet been

performed, the procedure and examples in this guide will be drawn from the COBRAS work accomplished to date.

Use of Simulation in Vignettes

Because of the emphasis on limited resource expenditures in vignettes, the use of simulation is often contraindicated. Simulation has the potential for providing significant training benefit. There are at least six ways in which simulation could enhance training, including:

1. Efficiently replicate battlefield activity, negating the need for large “live” support requirements such as terrain, equipment, and soldiers.
2. Automatically generate a continuous stream of cues for training audience, as opposed to trying to manually present cues.
3. Provide reasonable outcomes to battlefield actions after the appropriate period of time has elapsed.
4. Provide standardized training conditions.
5. Provide instructional features that enhance efficiency and effectiveness, including performance measurement.
6. Provide replay capabilities showing battlefield effects to support objective feedback.

However, if the simulation does not significantly achieve one or more of these advantages, then it is not an enhancement to training. For vignettes, COBRAS developers found that simulations were often not of sufficient benefit to justify the cost. Specifically:

- Live (field) training for a group and event is already achievable for a low cost when the training participants are located primarily in command posts (CPs). The expense comes in placing weapon systems and units on the ground (something that simulation does well). For events that do not require such resources, simulation would likely drive training costs up.
- If the vignette concerns a planning activity, the essential cues can be provided from printed material or radio communications, rather than requiring simulation.
- The short time duration of vignettes is usually insufficient to allow the simulation to portray outcomes of decisions and actions.
- For vignettes that focus on group interactions and synchronization, replay capabilities that show battlefield effects are too remotely linked to the group work (although they may be appropriate for evaluating tactical decision-making).

Thus the cost-benefit considerations lead to the conclusion that simulation is a significant contributor to training value only if:

- The vignette requires representation of weapon systems or troops to provide *essential* tactical realism, dynamically cue the training audience, and react to the training audience; and
- The vignette can be extended long enough to allow the situation to develop so that battlefield effects can be seen.

The alternative to using technology-based simulations is to use “live” simulation. For most of the COBRAS vignettes, this was relatively easily accomplished. The training participants, normally located in a CP, perform the vignette in any room large enough to work in. Communications are represented by means of written messages or by having the training monitor simply provide any necessary information. By using this type of simulated environment, resource costs are kept low, and the vignettes are feasible as unit-administered exercises⁵.

Training Support Package Products

The products of a structured training development project comprise the TSP. For the ARI-sponsored projects and as defined in Training and Doctrine Command (TRADOC) Regulation 350-70 (DA, 1995), the TSP structure is shown in Figure 2. The components are:

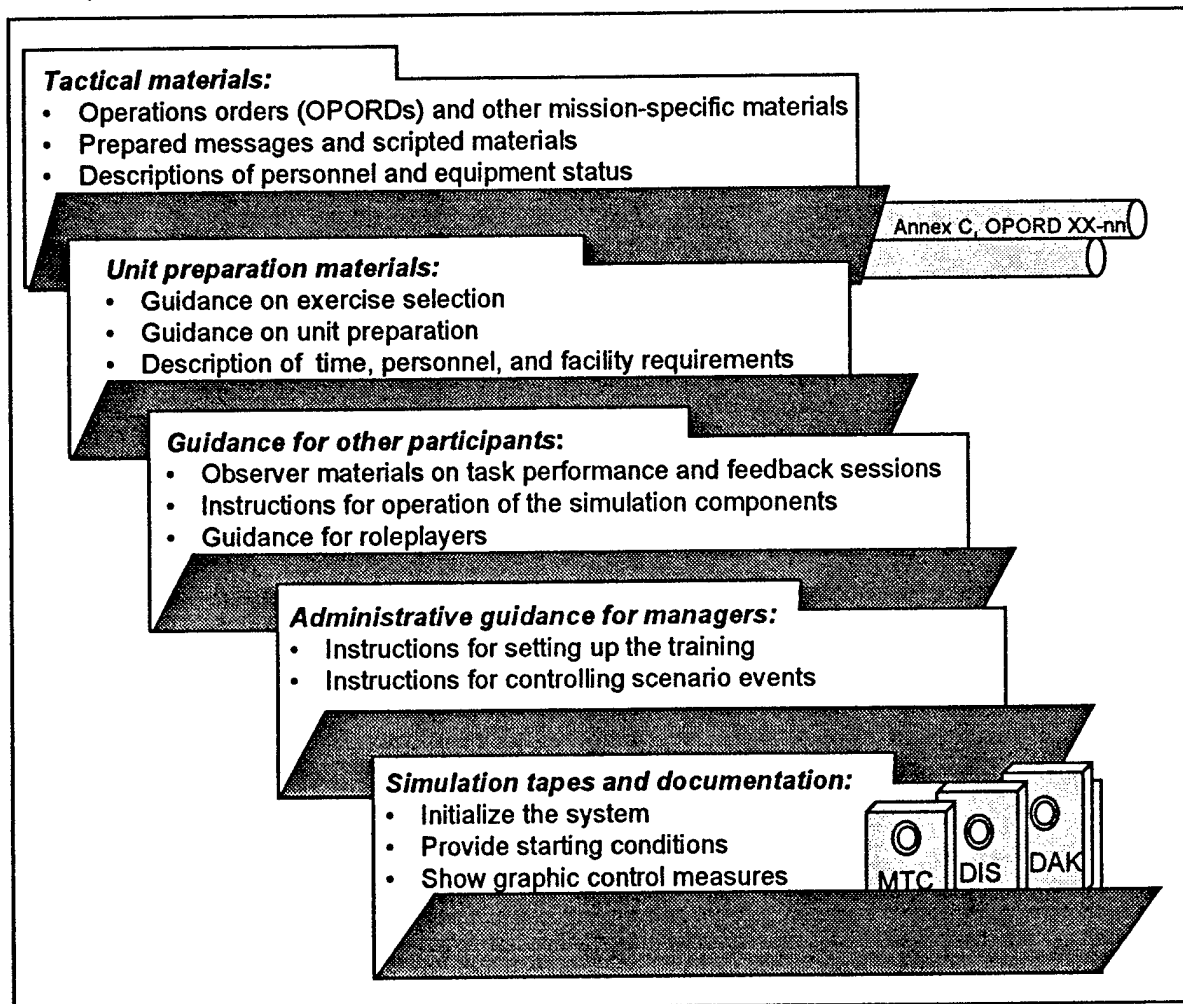


Figure 2. Components of a training support package for a brigade/battalion battle simulator (BBS)-based structured training exercise.

⁵ Both the original methodology guide (Campbell et al., 1995) and the expanded methodology (Campbell & Deter, 1997) contain detailed guidance on considerations for virtual and constructive simulation-based training. The guidance is also appropriate for simulation-based vignettes. Interested users should refer to those other reports for additional information concerning development of TSPs for simulation-based exercises.

- *Tactical materials.* Such materials may include operations orders (OPORDs) and other mission-specific materials to be used in unit preparation and rehearsals, prepared messages and scripted materials that are used during the exercise to cue tasks, and descriptions of personnel and equipment status to set the scenario conditions.
- *Preparation materials for the training participants.* These assist unit leaders in selecting the appropriate training for their needs, provide guidance on unit preparation, and describe the time, personnel, and facility requirements.
- *Guidance for other participants.* These guides represent the “train the trainer” materials. They include observer materials that direct attention to specific task performance, describe acceptable performance, and outline the feedback sessions. For simulation-based vignettes, there will also be instructions for operation of the simulation components and guidance for roleplayers who interact with the unit during the exercise.
- *Administrative guidance for managers of the training.* These include instructions and suggestions for setting up the training and controlling scenario events for the individual designated to implement the exercise (usually referred to as the “Training Coordinator”).
- *Simulation files and documentation.* Simulation files, on disk or tape, are used with the selected constructive or virtual simulation to initialize the system, provide starting conditions (e.g., locations, task organization), and show graphic control measures. The documentation is provided as back-up in case the initialization tapes are unusable.

This structure for the components of a TSP allows developers considerable latitude in organizing and presenting their materials. Such flexibility is essential, because every structured training program will require an individually prepared TSP, specific to the requirements of that program.

With vignettes in particular, such flexibility is key to attaining low-resource training opportunities. One TSP characteristic that allows vignettes to focus on limited audience and events is that the TSP will contain all of the essential situational information up to the starting point of the exercise. All of the necessary cues and conditions will be included, and unnecessary information is carefully screened out of the TSP materials. While this presentation may sometimes be less than fully realistic, it is the necessary compromise that permits the vignette to occur with whatever realism is necessary and sufficient.

Note on the Previous Methodology Reports

The most recent version of the methodology for development of structured simulation-based training (Campbell & Deter, 1997) contains expanded explanations of TSPs and formative evaluation activities. The Appendix to that guide is a checklist that can be used to review developing or completed TSPs. The report on the revised methodology (Campbell, Deter, & Quinkert, 1997) provides additional details on the history, purposes, and uses of the methodology.

OVERVIEW OF THE METHODOLOGY FOR DEVELOPMENT OF STRUCTURED SIMULATION-BASED TRAINING

The methodology for developing structured training exercises originated in the SAT model (DA, 1988). The SAT process comprises five phases:

- *Analysis*—Determine the training requirement, training audience, and appropriate training media.
- *Design*—Prepare the specifications of the training components.
- *Development*—Construct and refine the various training package components.
- *Implementation*—Deliver the training in an operational setting.
- *Evaluation*—Assess success in achieving the program's training goals.

The development procedure described here parallels the SAT process in many respects. However, the SAT activities phases have been narrowed in this vignette development procedure to focus on the development of structured training for small groups and focused situations. This procedure addresses analysis only briefly, and concentrates primarily on design and development. For vignette development, the activities include:

- *Analysis*—initial decisions and selection of training objectives.
- *Design*—specification of the exercise scope and structure.
- *Development*—construction of TSP components, tryouts, and formative evaluation.

Developmental Activities in the Methodology

There are four phases to the basic development methodology, as shown in Figure 3⁶:

- **PHASE 1. PREPARE INITIAL DESIGN⁷**—Determine the design specifications, including the user, situational context, appropriate training environment, specific audience and event, and vignette presentation model.
- **PHASE 2. DESIGN VIGNETTE SCENARIO**—Determine the limits of the vignette in terms of mission, enemy, troops, terrain, time available, and communications (METT-TC); generate the tactical framework for the vignette; specify the scope of the vignette event; define and begin development of simulation or scripted materials.

⁶ The wording of the phases and activities in the vignette methodology presented here varies slightly from the original (Campbell et al., 1995) and expanded (Campbell, Deter, & Quinkert, 1997) versions, in order to make it more specifically suitable for vignette development.

⁷ While a rigorous and thorough needs analysis is the foundation for design and development, it is frequently the case that the training requirement is not defined as a part of the same effort that performs design and development. This guide demands that the developer know what the training requirements are, whether or not they were identified within the design and development work. For more guidance on performing training needs analysis see, for example, Muchinsky (1987), Goldstein (1980), and TRADOC Regulation 350-70 (DA, 1995).

- **PHASE 3. PREPARE DETAILED TRAINING OBJECTIVES**—Focus the training on critical performance requirements and standards for the selected audience and event.
- **PHASE 4. DEVELOP TRAINING SUPPORT PACKAGE**—Construct and try out all of the components of the training program, including materials for the trainers and for the participants and, as appropriate, the simulator/simulation-based components.

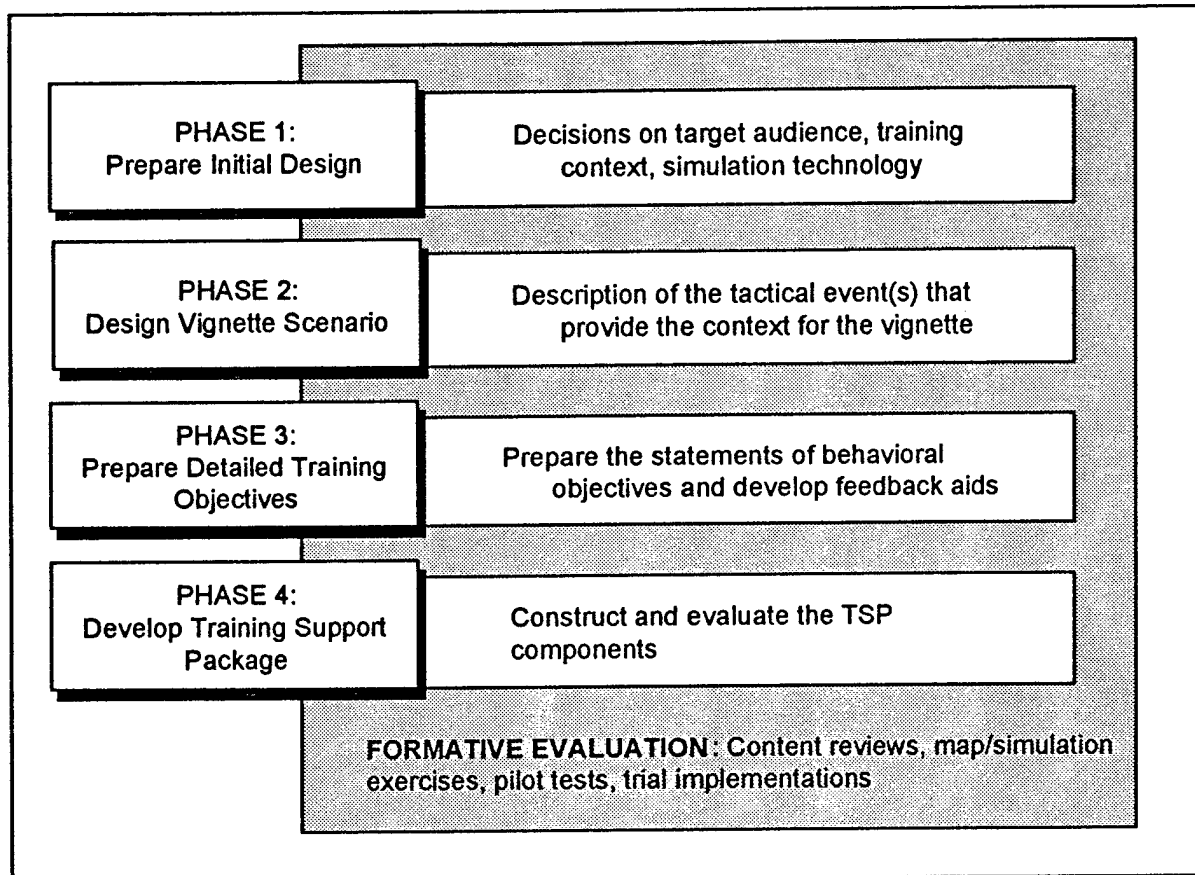


Figure 3. The four phases in the methodology for development of structured vignettes.

These four phases are not done in a strictly linear fashion. There will be considerable overlap among the phases. For example, understanding of the initial decisions will change as more is learned about the training environment and the performance requirements; information that feeds into development of the TSP will be captured during documentation of initial decisions; and so on.

The SAT *implementation* and *evaluation* phases are not replicated in the development methodology as separate and distinct phases. Both operational implementation and the summative evaluation take place after the activities covered by the methodology, when the training package is received by the user. Therefore, they are not covered in this guide.

However, the procedure does incorporate a series of required and critical *formative evaluation* steps throughout the development process. Some of these are formal activities (such

as roleplay enactments of the vignette conducted by the design team, tryouts with representative individuals, technology-driven tryouts, or content reviews with experts and stakeholders or proponents⁸). Formative evaluation also includes a continuous attention to the need for revisions and improvements. The purpose of formative evaluation, both the formal activities and the continuous revisions, is to insure the quality of the product by attending to quality throughout development. In Figure 3, formative evaluation is depicted as underlying all of the design and development work. This continuous examine-evaluate-refine process, which derives from the formative evaluation attention, is one reason for the non-linear aspect of design and development. It is based in part on the procedure presented in Herman, Morris, and Fitz-Gibbon (1987).

This guide presents the development activities specifically for producing small group, focused event training situations. It should be noted that the design and development effort for one vignette is as intensive and difficult as is the effort for a much larger exercise. Developers must be as careful of consistency and doctrinal correctness, functionality of TSP materials, and training utility and benefits for an exercise for a small group as they would be for large-group integrated exercises.

Detailed guidance regarding the application of the methodology is contained in the next section of this report, *Procedure for Development of Vignettes*. Each phase of the procedure is introduced by a discussion of the purpose of that phase, along with a list of the activities in the phase. Each activity is then presented with a lengthy explication of the considerations for that activity and examples drawn from the COBRAS work.

The activities should, in general, be performed in the order described. However, the process is not meant to be rigid. The continuous attention to formative evaluation during an activity will often cause the developer to go back and revise the products of an earlier activity. In fact, the entire process should be regarded as flexible, and developers should be prepared to move back and forth between activities during the development, revising decisions and products as necessary.

Whenever decisions or products are revised, the developer must trace back through earlier development and correct all related products, whether they are interim products or parts of the final TSP. We cannot emphasize too strongly the importance of keeping all products current and in agreement with each other. We should also point out that, in our experience, this is one of the most difficult challenges in development. Contrary to expectation, the amount of tactical and other TSP materials required to support a vignette may well be more than what is required for a full large-group mission-based exercise.

Although the procedure section presents a succinct procedure for developing vignette exercises, it is not in itself sufficient for development. Subject matter expertise for associated military aspects (e.g., the mission type, unit type, operations, and enemy tactics), training and instructional design expertise, and expertise on the selected simulation technology (as appropriate) will be required throughout the development and review processes.

⁸ By "proponent" we mean whoever decided that the training was required. This person or agency is usually the primary client for the development effort.

The Appendix to this report contains an outline of the methodology which will serve as a job aid or checklist for the development process. It includes a listing of the phases, activities, and formative evaluation considerations in the methodology. As appropriate, some of the most important design and development considerations are also listed. For each of the activities, the outline indicates the activity's product or outcome. Not all of the indicated products are used in the final TSP; some are interim products that assist developers in moving through the development process.

PROCEDURE FOR DEVELOPMENT OF VIGNETTES

This section details the activities and considerations in the development of structured small-group exercises, or vignettes. Figure 4 outlines the process, showing the four phases, the activities, and the role of the formative evaluation. This section also contains examples of the development process, drawn from work on the COBRAS vignettes. The procedure is addressed most directly to developers, who are referred to as “you” in this section.

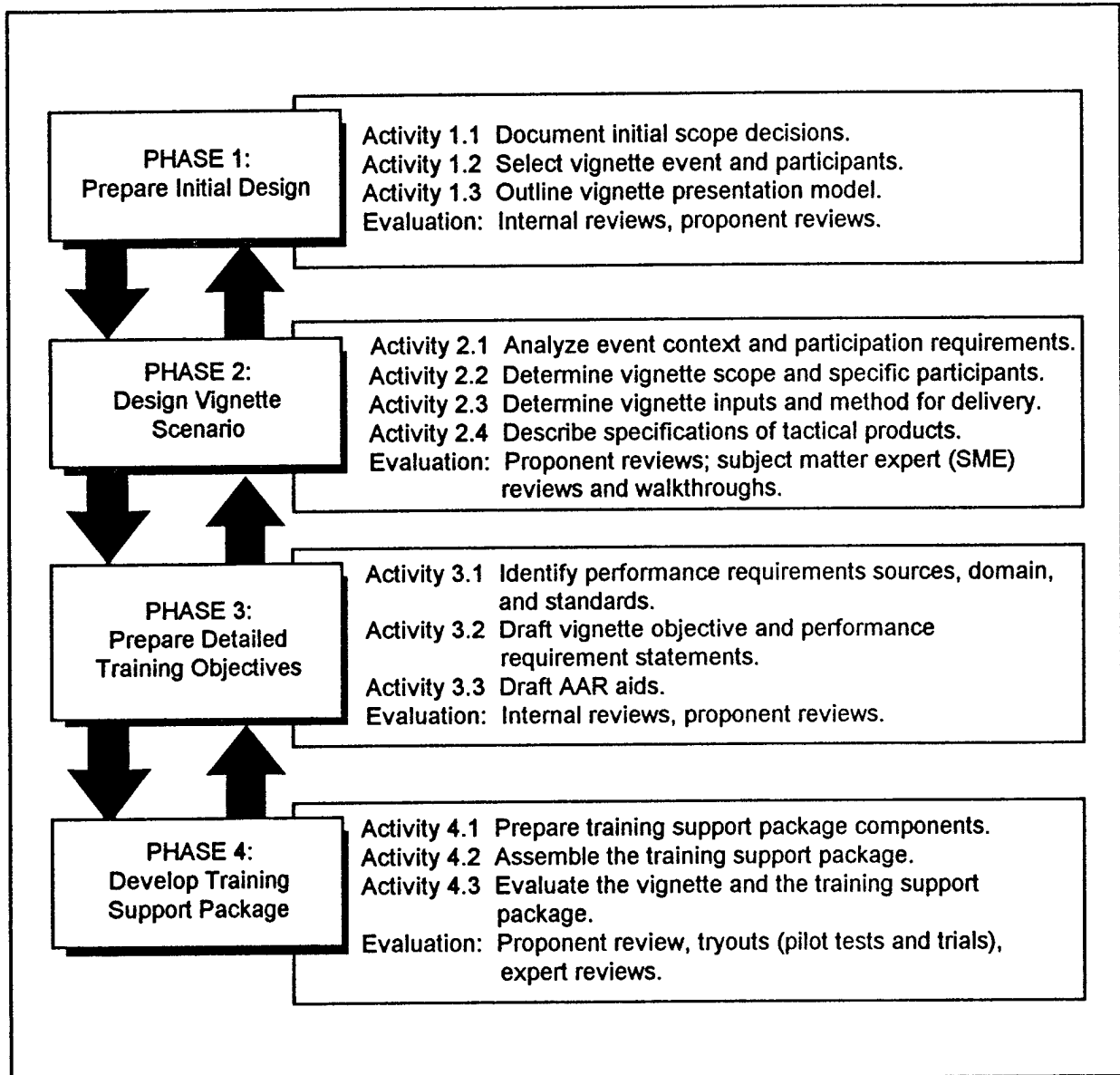


Figure 4. Overview of a procedure for development of structured small-group exercises.

PHASE 1. PREPARE INITIAL DESIGN

Activity 1.1 Document initial scope decisions.

Activity 1.2 Select vignette event and participants (tentative).

Activity 1.3 Outline vignette presentation model.

Formative Evaluation: Internal reviews, proponent reviews.

In the first phase of development, you will make or identify certain decisions about the vignette that is to be developed, and then document those decisions. The input for this phase may be external to your vignette development efforts, in that the requirement to develop vignettes for a particular type of unit, mission, and training environment may be specified for you by the proponent. In other cases, the proponent will rely on you, the training developer, to identify alternatives and make recommendations. In either event, the front end analysis should tell you in general terms what the training need is (the event, the participants, and the performance requirements).

Whether you are performing the initial needs analysis or simply recording the results of an already-completed analysis, it is crucial that those initial decisions be preserved. They form the foundation for the work, and will help to guide subsequent decisions. In vignette development, Phase 1 has three activities: to document the initial decisions, make tentative decisions about the vignette event and participants, and outline the vignette presentation model.

Formative Evaluation

At the early part of this phase, concentrate on internal reviews to assess the wisdom of the decisions. This means having a group of other subject matter experts (SMEs) and instructional developers review your decisions to verify that you have captured the event correctly, that you have designated the right participants, and that the vignette is worth doing (has training value). When all three activities in this phase are completed, you should plan on a briefing to the training proponent. In that briefing, your goal will be to get approval of the decisions made, or input on any required changes. The briefing should present those decisions and the reasons, as well as any outstanding issues to be decided. This will help to ensure that your design and development efforts are in accordance with the intentions of the proponent.

You should ensure that both the proponent and the design and development team have thought about the implications of the decisions and are clear on what the decisions are. The initial design phase can be an exciting time, with seemingly boundless opportunities for innovative approaches and ambitious (even grandiose) plans. The challenge will not be in finding valuable training needs that can be addressed. It will be in excluding activities so that the training can focus on specific performance objectives. Try to anticipate the efforts that will be required to carry out those plans, and be willing to modify those plans if they turn out to be unrealistic in execution.

Activity 1.1 Document initial scope decisions

Product/Outcome: Documentation of initial decisions on vignette scope.

The decisions that you make, examine, and record will serve as the basis for all of the other activities in developing the vignette. These decisions should arise out of a needs assessment, performed by you or the proponent before the remaining design work begins.

For vignette development, there are at least three areas of decisions:

1. **Training Audience:** The “training audience” is the personnel for whom the training is to be designed. Although the vignette itself will focus on a small group, the purpose of this activity is to identify the larger group. In some cases, this will be the entire population at the selected level (e.g., armor platoon, scout team). This may seem too obvious to be noted, but it should be documented, to ensure that all parties understand the training focus. In Activity 1.2, you will make a tentative selection of the specific training audience for a specific vignette (referred to as the “vignette participants”) from this larger group.
2. **Scenario Context:** The scenario context is the tactical situation that will provide the “storyline” in which the vignette is set. The scenario context for military training programs in tactical settings will likely include the mission type, enemy type, terrain, and unit type.

During this activity, you will make some initial broad decisions about the vignette scenario context. In Activity 1.2, you will carve out a specific event or set of activities, from the training context which will serve as the basis for the vignette itself. You will then continue to examine the context as the vignette is refined, in order to be certain that all necessary specifications have been addressed, decided, approved, and documented.

Some of the context considerations include:

- **Mission Type.** The mission provides the context for the scenario. The mission type will affect much of what follows, and should be specified early in the process. Examples of mission types include attack, defend, and break out from encirclement.
- **Enemy Type.** The enemy must organize and fight according to defined rules and tactics, such as are found in the TRADOC models.
- **Terrain.** The terrain setting that the exercise uses should be indicated in terms of the general area, such as the National Training Center (NTC), or Fort Knox, or Korea. Later you can get more specific about the precise locations where events will occur, if necessary.
- **Unit Type.** It has already been stated that the training audience should be specified. Make sure that you consider any additional defining factors. For example, if the training is designed for “brigade staffs,” you will want to specify the *type* of brigade (e.g., conventional or digitized, armor or mech or light, 3-battalion or enhanced 4-battalion).

- **Appropriate Training Environment.** Appropriate training environments may include classrooms, rehearsal sites (indoors or outdoors), CPs or tactical operations centers (TOC), or a simulation or simulator environment. Because of the high resource costs for the use of simulation, vignettes frequently use “live” simulation rather than constructive or virtual simulation.⁹ For example, if the training participants are normally located in a CP for the event, they can perform the vignette in any room large enough to work in, representing the CP. Communications may be represented by means of written messages or by having the training monitor simply provide any necessary information. By using this type of simulated environment, resource costs are kept low, and the vignettes become more accessible as unit-administered exercises.

Note: Because of their limited scope, many vignettes will *not* require that a particular mission, enemy, terrain, or unit type be completely specified as a part of the essential vignette conditions. In particular, vignettes that address certain aspects of planning processes or non-battlefield activities (such as those that occur in assembly or rear areas) may not require such a fully developed METT-TC. But some contextual description will always be required in the vignette introductory material, just to help the participants get their minds into the situation.

3. **Other Considerations:** Depending on the particular development project, there may be other considerations. These may include vignette time limits, linkages to other vignettes, availability of trainer resources, and so on.

- **Vignette time limits.** Every training implementation will have to be conducted within certain constraints; time constraints may be the most immediate and apparent. You need to establish a realistic target for vignette duration, so that the intended users can use the TSP. This estimate of available training time allows you to determine the scope of the event that can be addressed in the vignette. In COBRAS vignette work, the limit for live simulation vignettes has been 4 hours. That 4 hours includes an initial briefing, performance of the vignette event, and an AAR. Technology-based simulation vignettes, using constructive or virtual simulation will usually run closer to a full day.
- **Linkages to other vignettes.** There may be a requirement to link several vignettes by having them share the same tactical METT-TC or making them represent different aspects of the same mission (e.g., fire support, logistics). In other cases, several vignettes may be under development simultaneously, with the intent that they will, as a set, provide some complete coverage of a larger training audience. Yet another situation may be where each vignette covers a limited segment of a given scenario storyline, and each vignette leads to the next.

⁹ Additional guidance on development of simulation based exercises is presented in Campbell et al. (1995); Campbell & Deter (1997); and Koger et al. (in preparation).

Once any such linkages are identified, the development efforts should be planned and constructed in such a way as to ensure that all of the related efforts can satisfy their training goals while satisfying the requirement of commonality. In the case where vignettes lead from one to the next, be *very* careful about using products of one vignette as inputs for another vignette. The Training Coordinator should be the one with the responsibility to ensure that the products generated by the training participants are good enough to be used as inputs for another vignette. Therefore you, as the developer, have the responsibility to describe the product standards clearly enough that the Training Coordinator can judge the quality of the products without any question.

- **Trainer and Other Resources.** Know what training resources you are expected to plan for. For example:
- You may be able to plan on the use of a dedicated training cadre or O/C team, or you may need to design for a Training Coordinator (who manages and facilitates the training) from within the unit's resources.
- The training program may be destined for a single implementation site, or you may be developing a completely exportable package.

Activity 1.2 Select vignette event and participants (tentative)

Product/Outcome: Initial description of the vignette event and participants.

This activity sounds fairly simple, but together with the other Phase 1 activities, it lays the groundwork for development. Here you should state, at least tentatively, the event and the participants that will be the focus of the vignette. The two are completely interdependent, and must be drawn from the decisions documented in Activity 1.1.

An event is a group activity or task – it is the subject of the vignette. Usually, it is easy to make an event big in scope. The difficult task is to make it small enough for an easily administered vignette exercise. Three considerations in limiting the event scope are performance requirements, time, and audience.

- **Performance requirements:** Avoid long, global tasks that are performed continuously in the background (e.g., Maintain situational awareness). Make sure that the performance requirements are specific and can be performed under some specified conditions so that it is an event rather than a state of mind.
- **Time:** The event should be a limited set of activities that can be performed in a limited period of time by a limited number of people under some specified set of conditions. Remember that there is a time limit for the vignette; for COBRAS work, this was usually 4 hours. Allowing 15 minutes for the start-up activities, 15 minutes for AAR preparation, and at least an hour for the AAR itself, the vignette execution could not exceed 2½ hours. You may specify an event that would take longer, if you are willing to “compress” time by allowing the participants to omit certain activities.

- **Participants:** You must also limit the number of participants, that is, the specific training audience members for this particular vignette. The participants are drawn from the larger training audience group defined in Activity 1.1. Because vignettes are intended to be focused, the Training Coordinator will have a difficult time focusing the attention of a large group on a limited event. Some vignettes may seem trivial in the larger scope of a mission or a full staff or unit. But you should consider how the vignette activities will appear for those few people designated as the participants. Make sure that the activities and the event are significant and nontrivial for them.

In the COBRAS work, the initial work on a vignette was captured by means of concept outlines. An example is shown in Figure 5.

Activity 1.3 Outline vignette presentation model

Product/Outcome: Description of the implementation design for the vignette.

By “presentation model,” we mean a description of how the vignette will be presented, what the components of the TSP will likely be, who will be involved in implementation, and so on. This outline is essentially a summary of the initial decisions described in Activity 1.1, with the addition of a tentative statement of the event and participants from Activity 1.2. An example from the COBRAS work is shown in Figure 6. As you go on, you may need to revisit the decisions that have been made. Inconsistencies between and among vignette components may emerge and require resolution.

Summary: Phase 1

In the development methodology, these first three activities and their products serve as input to all other activities. The decisions on training audience and training objectives that came out of the needs analysis are central to virtually every activity in the remainder of the development process. They form the basic structure for the exercises, serving as the foundation for your development objectives. For that reason, it is essential that you make sure that the decisions from all three activities are clearly spelled out and available to and understood by the design and development team.

Don't underestimate the value of reviews by proponents, other members of the development team, and other external training developers. Every bit of expert input can help you prepare a more solid foundation for your subsequent efforts.

ELEMENTS	CONTENT
1. Event	Plan brigade combat service support rehearsal.
2. Participants	S1, S4, Forward Support Battalion (FSB) commander. Consider S2? S3?
3. References	<ul style="list-style-type: none"> • FM 71-3, chapter 3, section V, "Brigade Rehearsals." • FM 71-123, chapter 2, section II, "Rehearsals." • FM 71-123, chapter 8, "Combat Service Support." • FM 12-6, <i>Personnel Doctrine</i>. • FM 63-20, <i>Forward Support Battalion</i>. • TC 25-10, Appendix G, "Conduct Rehearsals."
4. Simulation or Facility Requirement	Live simulation only, need a planning room. Planning for Combat Service Support (CSS) rehearsal, not actually conducting.
5. Preceding Situation	The brigade is preparing to conduct a deliberate attack against a Motorized Rifle Regiment (MRR) defending out of contact. Brigade occupies an assembly area. Planning is completed, order published. Plan for conduct of combined arms rehearsal (terrain model) near the main CP also completed.
6. Start Point	Commander's guidance for CSS rehearsal.
7. Vignette Activities	Plan the CSS rehearsal.
8. End Point	CSS rehearsal plan. Planning worksheet to be provided?
9. Limitations	Participants should not change the brigade plan or concept of support. Will not need to develop CSS execution matrix or FSB synch matrix. Will not be able to interact with other brigade, battalion (bn)/task force (TF), or subordinate units.
10. Materials	<p>Parts of division OPORD (para 4, Appendix 1 & 3 to Annex Q). Basic brigade OPORD, Annex A, synch matrix, Annex Q with Appendixes 1 and 4. Commander's situation report (SITREP). Brigade decision support template, service support overlay.</p> <p>Job aid: Rehearsal planning worksheet (optional?)</p>
11. Objective	Prepare CSS rehearsal plan, specifying key activities and participants.
12. Performance Requirements	<ul style="list-style-type: none"> • Select CSS activities for the rehearsal • Specify participants and responsibilities • Determine type and technique • Select time and site • Develop rehearsal agenda

Figure 5. A sample concept outline for a COBRAS vignette.

PRESENTATION MODEL COMPONENT	INFORMATION NEEDED	LOCATION IN TSP
Unit leader decides to conduct vignette training	List of available vignettes	Vignette Management Guide
Training Coordinator named and provided with the vignette training management guide	Description of Training Coordinator duties	Vignette Management Guide
Vignette time and facility scheduled, participants notified	Vignette description and participant list	Training Coordinator Guide for the selected vignette
Training Coordinator prepared materials	Preparation instructions	Training Coordinator Guide for the selected vignette
Training Coordinator conducts initial orientation briefing and distributes readahead materials to participants	Initial orientation briefing	Training Coordinator Guide for the selected vignette
	Readahead materials	Participant Guide with readahead materials for the selected vignette
Participants prepare for vignette conduct	Preparation guidance; readahead materials	Participant Guide with readahead materials for the selected vignette
<i>Simulation-based:</i> simulation files loaded, roleplayers and interactors trained	Simulation files and instructions for use	Simulation files and Support Coordinator Guide
	Training package for roleplayers and interactors	Support Coordinator Guide, Roleplayer/Interactor Guide
Training Coordinator conducts situation brief and distributes start-up materials	Situation brief, start-up materials	Training Coordinator Guide with start-up materials package for the selected vignette
Vignette Conduct: Training Coordinator observes and guides	Training objectives and observation guidance	Training Coordinator Guide for the selected vignette
Training Coordinator conducts after action review	Training objectives and observation guidance, AAR guidance, sample products	Training Coordinator Guide with sample products for the selected vignette

Figure 6. Presentation model for the COBRAS vignettes.

PHASE 2. DESIGN VIGNETTE SCENARIO

Activity 2.1 Analyze event context and participation requirements.

Activity 2.2 Determine vignette scope and specific participants.

Activity 2.3 Determine vignette inputs and method for delivery.

Activity 2.4 Describe specifications of tactical products.

Formative Evaluation: Proponent reviews; SME reviews and walkthroughs.

During this phase, you will plan and outline the tactical scenario that will provide the specific conditions for the vignette and refine decisions about the participants in the vignette. This is a lengthy phase, comprising four activities. In addition to producing the structure of the vignette scenario, you will also begin to specify the statements of the vignette training objective and performance requirements, work you will continue in Phase 3.

Formative Evaluation

For all of the activities in this phase, the formative evaluation activities are primarily internal, with continual information updates to the proponents. Internal checks and walkthroughs, conducted among vignette developers and subject matter experts, will help to ensure that the evolving vignette concept is of the appropriate scope and that your decisions about participants, inputs, and products, are correct, internally consistent, and acceptable.

Activity 2.1 Analyze event context and participation requirements

Product/Outcome:

- Outline of activities before, during, and after the vignette event.
- Description of roles of all persons involved before, during, and after the vignette event.

The process of analyzing the tentatively-selected event is referred to as “event analysis.” During an event analysis, you will walk through the extended event (i.e., the event itself and the activities immediately preceding and following the event), noting participants, conditions and cues, actions, and products. The purpose of this event analysis is to ensure that you have captured all of the necessary information about real-world occurrence of the event, concerning:

- WHO are the key participants,
- WHERE would they be during the event,

- WHAT do they use as input for activities preceding the target event and for the event itself,
- HOW do they use the inputs,
- WHAT do they produce, and
- WHY are they doing this, what led to this event.

To “walk through” is to use subject matter experts to perform the process and write down all of the details for those key information needs listed above. By walking through the event and the preceding and following events, and documenting the information on participants, conditions, inputs, actions, and products, you will have a complete list of everything that *could* go into the vignette to fully account for the event.

Of course, if you were to include all of that in the vignette, it would no longer be a focused, small group exercise. You will have to draw the line somewhere. Activity 2.2 discusses how to “draw the line.”

Activity 2.2 Determine vignette scope and specific participants

Product/Outcome:

- Description of cues and products (inputs and outputs).
- Designation of target participants and their actions
- Specification of event beginning and ending points.

In this activity, you must draw the line between what is a part of the vignette, and what is not. Decide what actions, participants, and products of the extended event will be in the vignette, and what should stay out, to be represented as scripted or “given” or notional information or activity. Look carefully at the participants and the actions to make sure that they are synchronized: The person(s) involved in the selected actions should be either included as vignette participants, or explicitly excluded and their roles be scripted. Don’t exclude anyone who is a key information-provider in the event.

By the same token, don’t include anyone who does not have an important function to fill within the scope of the event. Certain individuals may usually be involved in particular actions, but that does not necessarily mean that they should be participants in the vignette. You have already decided to focus on some particular interaction, using the event as the venue for practice of the interaction. Rather than including all of the possible participants, your goal should be to focus on a selected set of participants. Be especially wary if the selected set seems to be growing: A group of 3-7 vignette participants is about as much as can be accommodated in most short exercises.

This requires a great amount of consideration and care. For example, you may be trying to design a vignette for training interactions among four key persons, but the event doesn’t seem to require that all four of them be participants. You have two choices: Keep the event as it is and

revise the vignette participant list, or retain the vignette participant list and modify the event so as to make them all be full participants.

During the event analysis (Activity 2.1) you kept a record of what everyone was doing before and during the event. Now consider that record of activity, and note what the selected vignette participants will do during the vignette. This may not be identical to a list of everything that happened during the time period. The vignette scope is deliberately focused on the event, and although other things might happen during that time period, they might not be relevant or necessary for the vignette.

Finally, compose a draft description of how the vignette begins, what happens during the vignette, and how it ends. For example,

- **Begin:** The initial mission analysis is complete, the commander has given his intent and guidance, and the staff is ready to begin a course of action development process.
- **During:** They will develop three courses of action, based on the statement of the commander's intent.
- **End:** The process will be completed when the staff is ready to brief the commander on the three courses of action.

Just as limiting the number of vignette participants is a way of maintaining the focus, so is limiting the time. If you find that the designated event for the vignette is likely to require more than 2 or 3 hours, you may be losing the focus. Recall that vignettes are intended to be short and easily implemented. With unit demands what they are, a small group half-day exercise is manageable.

Activity 2.3 Determine vignette inputs and method for delivery

Product/Outcome:

- Description of vignette tactical inputs and inputs from nonparticipants.
- Description of how the inputs will be provided.

Having drawn the line to select the event actions and vignette participants that will be included in the vignette, you can determine how to ensure that those participants will be prompted to perform. Look at what causes the activities. For example, it may be commander's guidance, a particular next step in a process, or some enemy activity. Decide how to represent that cause in the vignette: a written or verbal delivery of the specific commander's guidance, a summary of the steps and products leading to this step, an intelligence report detailing the enemy actions, some simulation-based Opposing Force (OPFOR) actions, and so on.

Look also at what other information the vignette participants need. This information might be presented by means of readiness reports, other intelligence summaries (INTSUMs), orders or

their annexes, messages by radio or tactical fax (TACFAX) that come in during the vignette to augment the initial information, or other simulation-based conditions and events.

Be careful not to confuse “need” with “would have.” Just because a brigade S3 would normally have the division order before wargaming takes place does not mean that he will need the complete division order to do the wargaming. It may be more efficient to provide the OPORD summary and a course of action description, if the vignette is focused only on the wargaming itself. Evaluate each suggested piece of information carefully to make sure there is a purpose for including it.

You will need to find a balance between realism and unnecessary detail. Normally the brigade staff may get information for developing a course of action branch from a variety of sources. But you can provide that up-front information in a summarized form, without requiring that they read through all possible sources in order to find out what has already happened. The point is to include the necessary information, to present it in a way that is digestible, and to not require performance that is outside the scope of the vignette.

You must also examine roles of the individuals that you decided were outside the line (in Activity 2.2), and determine how to account for their inputs, roles, and actions. Either the situation and underlying story have to make their involvement unnecessary, or you will need to provide their input in their absence. Providing their input requires that you devise a way to make their input standardized, rather than dependent on what the vignette participants ask for. If you can neither standardize the input, nor construct a storyline that does not require their presence, then you must either include them as participants or re-draw the line so that the event does not require their input.

If you have decided that this will be a simulation-based vignette (in Activity 1.1), then the simulation itself will provide some of the cues. But you will be responsible for ensuring that cues occur when and where they make the most sense. You do this by controlling the simulation-generated OPFOR, in terms of where and when they move, how they’re organized and equipped, and so on. You will also specify, and probably script, the input from higher, adjacent, and subordinate units that will be provided by radio or digital comms.

Activity 2.4 Describe specifications of tactical products

Product/Outcome: Description of the products.

Not every vignette will necessarily result in a product, but we have found that most vignettes do have products. In particular, planning and preparation activities nearly always have products, while execution events often do not.

At this point, you should be preparing a description of what the product or products will be: for example, a decision support template, an annex, or a rehearsal plan. In many cases, the product will be exactly what the participants would develop in a real-world version of the vignette. If there are such real world products, such as orders or matrixes, you should try to specify them as vignette products.

Other times, the product may be somewhat contrived. You may, for example, require that they write down their complete list of implied, specified, and essential tasks; normally, they might only record the essential tasks. You may even want to provide a worksheet, on which participants fill in the blanks. This can be somewhat unrealistic, and make the vignette appear more like a classroom exercise. But if you do it well, you may be inventing a very valuable job aid that fills a void, and that participants will continue to use outside the vignette.

Summary: Phase 2

The activities in Phase 2 will have provided the details of what the vignette will contain. However, these details will very likely be modified during Phase 3, as you capture specifics about the training objectives and standards. The SME reviews and walkthroughs will help to ensure that the scenario is tactically correct and consistent. Ask yourselves:

- Is the tactical situation plausible?
- Is there just enough and not too much detail?
- Are all of the participants involved and interacting?
- Will they be able to understand what they're supposed to do?
- Is the situation challenging without being overwhelming?

PHASE 3. PREPARE DETAILED TRAINING OBJECTIVES

Activity 3.1 Identify performance requirements sources, domain, and standards.

Activity 3.2 Draft vignette objective and performance requirement statements.

Activity 3.3 Draft AAR aids.

Formative Evaluation: Internal reviews, proponent reviews.

During this phase, you will formulate the specific performance requirements that will be the focus of the vignette. The three activities will involve finding sources of information on performance requirements for each vignette participant for the selected event (Activity 3.1), refining the list to reflect the performance requirements for the vignette participants (Activity 3.2), and then preparing a tentative list of AAR questions and the considerations for answers (Activity 3.3).

The list of performance requirements will serve two purposes:

1. It is the foundation of the observation and feedback mechanism of the exercise.
2. It defines the performance objectives for the intended users.

Formative Evaluation

Throughout this phase, the formative evaluation is still primarily internal, with frequent proponent briefings to obtain concurrence on decisions and approaches, or to obtain guidance for refining and modifying the work.

Activity 3.1 Identify performance requirements sources, domain, and standards

Product/Outcome: Performance requirements and standards.

The first activity in Phase 3 involves identifying sources of performance requirements information for the selected event and participants. For many Army training projects, the most likely task sources are the Army Training and Evaluation Program (ARTEP) Mission Training Plans (MTPs) and field manuals (FMs). Other sources include training materials prepared by the proponent agencies and task lists developed by the proponent schools. Consider and examine all sources that are known or suggested to you. You might not use them all—they may be redundant or in an early development stage or out of date, for example. You should keep a record of all sources considered and the reason you did not use particular sources that you considered, in case you need to revise your approach later.

Make sure that you have the most recent approved versions of the sources. If you know that another version is coming out soon, you should review the draft if you can, see what differences there will be, and then make or obtain a decision as to whether to use the current or the emerging version. That decision will depend on when the change or update will be released and how vast the differences are. Using a different version during development than the training participants will use can cause confusion when the program is implemented. Your sponsor can help resolve questions on the most acceptable references for task performance.

For a source to be useful, it must contain tasks or descriptions of performance requirements for the selected event and vignette participants (specified during Activity 2.2). The tasks or descriptions must clearly describe how to perform, under what conditions, and to what standard. Sometimes, information from several sources can be combined to yield complete task analytic information. Other times, you may need to add specificity by means of subject matter expert input and proponent reviews.

The product for Activity 3.1 is a fairly comprehensive list of tasks and performance requirements that describes the expected behavior of the vignette participants. In Activity 3.2, the list will be refined in order to determine which tasks can be cued and observed during the vignette.

Activity 3.2 Draft vignette objective and performance requirement statements

Product/Outcome: Vignette objective and list of performance requirements.

The vignette objective will appear in both participant and Training Coordinator guides, and helps both the vignette participants and the Training Coordinator to know what the vignette training should accomplish. It should tell them what the vignette training event is and what we want to see the vignette participants do. Although it is clearly a training exercise, the vignette objective should be worded to focus on the event, rather than the training (not “Learn how to plan a rehearsal,” but rather “Plan a rehearsal”). The objective should describe the focus of the vignette, should come from the event description, and should be brief and direct. Figure 7 shows a sample of a vignette objective and the associated requirements statements for a COBRAS vignette.

The purpose of the performance requirements statements is to tell the user and the Training Coordinator specifically what the participants will do or generate during the vignette. These statements are an expansion of the vignette objective, and will help the user select the appropriate vignette by telling what goes on in the vignette. The performance requirements statements describe the major chunks of behavior or products that are involved in accomplishing or meeting the objective. They will be based on the performance requirements that you derived in Activity 3.1, condensed to form a list of 4 to 10 statements of the meaningful chunks of behavior. This need not be a strictly sequential listing of the steps in the event. The statements should tell what has to be accomplished, rather than how to get there.

Vignette Title	Plan brigade CSS rehearsal
Objective	Prepare a CSS rehearsal plan that specifies key CSS activities and key participants.
Performance Requirements	<ol style="list-style-type: none">1. Select CSS activities to be rehearsed.2. Determine the participants and their responsibilities.3. Determine the rehearsal type and technique.4. Select the rehearsal time and site.5. Develop the rehearsal agenda.

Figure 7. Sample vignette objective and performance requirements statements.

If you are working on a simulation-based vignette, you will also have to make judgments about which performance requirements can be included in the training, based on simulation capabilities. You may find performances that you want to train, but that cannot (or should not) be trained using the selected simulator or simulation. For example, a leader’s reconnaissance might be an important part of mission planning, but it can’t be realistically represented in a constructive simulation. Some performance can be partially represented, and you will have to judge whether

those performance parts are critical and are well enough represented to justify their inclusion in the training.

As you work through this activity for simulation-based vignettes, you will have to be, or have access to, someone who is *very* familiar with the capabilities of the simulator/simulation. It will not be enough to look at the capabilities descriptions provided by the vendor, nor to take the word of the development engineers and technicians. There is no adequate substitute for first-hand knowledge of how the simulation works. Unless you are an expert on the simulation, you will need to work closely with a technician who can demonstrate the functions that you need to replicate.

Activity 3.3. Draft AAR aids

Product/Outcome: List of AAR questions tied to performance requirements, with considerations for responses.

The purpose of the AAR is to help the Training Coordinator and the vignette participants “discover” how to accomplish the tasks, what to consider, what to produce – in other words, how to better perform during the event. Because the vignette is intended to be implemented with a minimum of additional preparation on the part of the participants and the unit, vignettes usually contain some kind of AAR aids. Any type of AAR assistance that you provide has to be strictly tied to the objective and performance requirements that you composed in Activity 3.2. While the performance requirements focused on what had to be accomplished, the AAR will focus on discussion of how to accomplish those things.

One type of AAR aid, used in the COBRAS vignette TSPs, is a set of leading questions to guide the discussion among participants after the vignette is completed (an example is shown in Figure 8). Other approaches include providing an AAR outline or a list of key points for discussion. In order to continue to keep preparation requirements to a minimum, you should also provide some key considerations for answers to the AAR questions or discussion points. By providing this information, you will also force yourself to be sure that the questions can be answered or the discussion points can be comprehended.

Summary: Phase 3

All of the training content decisions should have now been made. Phase 2 covered the scenario context, and Phase 3 provided the detailed material to support guided practice and feedback on the training objectives. You should continue to obtain SME and training developer reviews of your ideas and decisions. You and your reviewers should be asking:

- Will the scenario support and cue these training objectives?
- Can an observer (who may not be an SME) use these materials to provide feedback?
- Is the information in the AAR aids correct?
- Is this exercise going to bring out important techniques and procedures of performance?

Objective: Prepare a CSS rehearsal plan that specifies key CSS activities and key participants

Performance Requirements, Discussion Questions, and Response Considerations

1. Select CSS activities to be rehearsed.

1.1 What sources were used to identify CSS activities that might be rehearsed?

At a minimum, sources should include Commander's Guidance, Concept of Support (paragraph 4 of the Bde OPORD), Synchronization Matrix (CSS line), and Service Support Annex to Bde OPORD.

1.2 How were CSS activities selected to be rehearsed?

Sources should be used as follows:

- *Commander's Guidance* describes his interest areas; it may be restated in terms of specific CSS activities.
- *Concept of Support (paragraph 4a of the Bde OPORD)* lists CSS activities that take place before, during, and after the operation.
- *Synchronization Matrix (CSS line)* lists CSS activities that support the battlefield framework. (Use it to confirm CSS activities drawn from Concept of Support and to focus them for the rehearsal.)
- *Service Support Annex to Bde OPORD* provides addition details in support of CSS activities.

CSS activities to be rehearsed should be bde-bn or across-bn (not within bn).

Consideration is made of time constraints allowing enough time to attend the rehearsal, to decide on changes to the plan, to disseminate changes, and to return to unit.

2. Determine the participants and their responsibilities.

2.1 Who were designated as rehearsal leader and recorder?

Rehearsal leader keeps rehearsal on track (on time and focused on selected CSS activities and events). Usually S4, because he runs bde logistics for the commander. Also, could be S1 as OIC of REAR, or FSB Cdr, as the senior logistician.

Recorder keeps track of changes for the bde - usually someone from leader's section.

2.2 Who were designated for rehearsal setup and orientation?

Site preparation – usually the responsibility of the leader's section

Terrain and enemy orientation – S2 section

Maneuver orientation – S3 section or XO

2.3 Who were designated to demonstrate or describe CSS activities?

Those who will provide information, make decisions, and carry out decisions in support of the selected CSS activities.

2.4 Who else should attend and why?

Those who are affected by or need to know about the decisions in order to make their own decisions.

Continued on next page

Figure 8. Sample AAR questions and response considerations for a COBRAS vignette.

Objective: Prepare a CSS rehearsal plan that specifies key CSS activities and key participants.

Performance Requirements, Discussion Questions, and Response Considerations

3. Determine the rehearsal type and technique.

3.1 Is the type appropriate to the situation (where they are and what they are doing)?

“Type” may be terrain model, map exercise, or key leaders.

Terrain model is best since the maneuver rehearsal is to be on a terrain model.

3.2 Is the technique appropriate to the selected events?

Three appropriate techniques are:

- Focus on each selected CSS activity throughout the full mission or operation
- Focus on all of the selected CSS activities during each phase of the operation
- Focus on each selected CSS activity during the most critical period of time for that activity

Complete rehearsal of all of the brigade’s CSS activities is not appropriate since the XO has specified that only critical activities be rehearsed.

4. Select rehearsal time and site.

4.1 Are the time and site appropriate to the situation?

Consider:

- Time available for planning, preparing for, and executing the rehearsal
- Time available to implement and disseminate changes
- Site and time of the combined arms rehearsal
- Conflicts for participants’ time or the site

5. Develop the rehearsal agenda.

5.1 What agenda items were specified?

At a minimum, include:

- Rehearsal standard
- Overview of the rehearsal events
- Orientations (enemy, terrain, maneuver)
- CSS activities to be rehearsed
- Critique

5.2 What is the rehearsal standard?

(1) *Inter-battalion activities* for the specified events are synchronized, and (2) rehearsal participants *understand their roles and responsibilities in the event activities*.

Figure 8. Sample AAR questions and response considerations for a COBRAS vignette (continued).

PHASE 4. DEVELOP TRAINING SUPPORT PACKAGE

Activity 4.1 Prepare training support package components.

Activity 4.2 Assemble the training support package.

Activity 4.3 Evaluate the vignette and the training support package.

Formative evaluation: Proponent review, tryouts (pilot tests and trials), expert reviews.

This is the final phase in the development methodology, wherein you will actually develop all of the components associated with the structured vignette. To a great extent, this process began when you first outlined the scenario (Phase 2) and listed the performance requirements and AAR aids (Phase 3). This section describes how to translate the earlier documentation into the final products.

In Activity 4.1, the specific components of the TSP will be prepared. These components include preparation materials, reference lists, tactical cues, and so on. In Activity 4.2, the task is to design, build, and evaluate a TSP that will be suitable for implementation, so that the materials developed in Activity 4.1 can be used in as many of the most likely situations as possible. In order to do this, you need to know what the implementation situation(s) will be and what the materials need to help the implementers do. By "situation," we mean the constraints and resources available for implementation at the site or sites where the program will be used.

Formative Evaluation

The formative evaluation should be very externally oriented in this phase. Various level of tryouts with experts and with representative users will be required in order to test the doctrinal and instructional quality of the vignette. Because these tend to be fairly rigorous and intensive, they are discussed more completely within the three activity descriptions that follow.

Activity 4.1 Prepare training support package components

Product/Outcome: TSP components.

Formative Evaluation: Proponent review; review by representative users; developer walkthrough (pilot test).

During the event analysis (Activity 2.1), you walked through the extended event (i.e., the event itself and the activities immediately preceding and following the event), in order to capture all of the necessary information concerning:

- WHO are the key participants,
- WHERE would they be during the event,
- WHAT do they use as input for activities preceding the target event and for the event itself,
- HOW do they use the inputs,
- WHAT do they produce, and
- WHY are they doing this, what led to this event.

In Activity 2.2, you “drew a line” between those event actions and participants that would be part of the vignette and those that would not. In Activity 2.3, you decided how to ensure that the vignette participants would be prompted to perform. In this activity, you will actually prepare the specific TSP materials for the vignette.

The five kinds of materials usually included in a TSP are described below specifically for vignettes. They include:

- tactical and other scenario materials,
- unit preparation materials for vignette participants,
- materials to aid or train roleplayers or interactors (as needed),
- simulation materials (as needed), and
- exercise management materials.

Tactical and Other Scenario Materials

These are the items that set the conditions for the vignette, provide cues at the start of and during the vignette, and serve as models in examining outcomes of the vignette. During Phase 2, you may have decided that the participants would need a description of the mission analysis outcomes in order to perform their course of action (COA) development. So you must find a way to present those outcomes. Unless there is a set format or method for presenting the information, you will need to design a way. Remember to keep it simple and focused on the vignette objective.

If you are simply providing background information, do it in the simplest way possible. But if you need to drive the participants to read and interpret tactical products, then provide the products.

These descriptions or products have to include specific details about the particular situation, in enough detail to cue participants and enable them to actually perform the activities. Consider use of the following types of items:

- Tactical overlays or overlays showing current positions
- Orders, selected annexes, selected portions of annexes, or summaries of annex information
- Transcripts or descriptions of commander's guidance or commander's intent
- INTSUMs or descriptions of enemy activity
- Supply reports and status update reports or descriptions
- Decision support templates, synchronization matrixes
- Description of rehearsal plan

It is often better to contrive a simple way of imparting information, rather than making participants wade through more realistic tactical products, if your goal is to get them smart on their situation before plunging into the vignette. Normally (in the real world), they would already be familiar with the conditions, because they would have been present as the situation developed. Therefore, there is no point in requiring that they become familiar with the situation the hard way.

Consider providing sample products in the vignette materials. The purpose of the sample products is to give the Training Coordinator and participants something to compare the participants' work to. Keep in mind that the sample products must be exemplary. In most cases, the specific content of the product will *not* be the same as what the unit produces. But it should be possible for them to infer something about the correct *process* by examining the *product*, and by comparing the product to an exemplary product.

In some vignettes, but certainly not all, you may want to prepare and include job aids for participants. The purpose of job aids is to give the participants a sample approach to a process when the process is not very clearly defined in their manuals; or to give them the tools they normally have. Job aids are useful when:

- there is only a vaguely defined process or no documented process for how to do the vignette activity; in this case prepare a process diagram, outline, or flowchart;
- there is no set way to record information or decisions; in this case prepare a worksheet to be completed; or
- there is a definite set way to record information or decisions; in this case give them the actual forms to fill out.

As an example of the second case, in the COBRAS vignette on planning a CSS rehearsal, the processes discussed in doctrinal manuals were nonspecific in terms of a desired outcome. Therefore, the vignette developers prepared a form for CSS rehearsal planning, that the participants filled out during the course of the vignette. A sample of the blank form is shown in Figure 9. The vignette TSP also included a completed form as a model for use in the AAR.

COMBAT SERVICE SUPPORT REHEARSAL PLANNING WORKSHEET			
Rehearsal Organization			
OPORD			
MISSION			
REHEARSAL STANDARD			
PARTICIPANTS	Leader		
	Recorder		
	Active Participants		
	Rehearsal Attendees		
CONDITIONS	Type		
	Technique		
	Site		
TIMELINE	Bde Orders Prep (Current Time)		
	Combined Arms Rehearsal		
	CSS Rehearsal Planning		
	CSS Rehearsal Warning Order		
	CSS Rehearsal		
	Disseminate Changes		
	Acknowledgment of Changes		
	Line of Departure		
AGENDA	WHAT	WHO	TIME

Figure 9. Sample participant job aid from a COBRAS vignette.

Tactical information may also be contained in an initial orientation briefing and a situation brief. The initial orientation briefing for a given vignette should usually be provided to participants by the Training Coordinator several days before that vignette is conducted. Its

purpose is to tell the participants to start preparing, to hand out the participant guides, and to point out the preparation steps and key features of the preparation materials. An example of an orientation briefing outline is shown in Figure 11.

Orientation Briefing Outline – Modify as needed for the vignette and situation
<ul style="list-style-type: none">• Review the vignette scope, objective, and tasks• Review the limitations for the vignette activities• Review preparation activities that are required of the participants• Announce the date, time, and training site for the conduct of the vignette• Distribute the <i>Participant Guides</i> and <i>preparation materials</i>, to include acetate copies of the Decision Support Template (DST) and CSS overlay. Provide the map sheets to the participants at this time as well.

Figure 10. Sample orientation briefing from a COBRAS vignette.

The situation brief is generally presented to participants at the beginning of the vignette. It includes the last pieces of information that participants need in order to begin the vignette (e.g., commander's intent, INTSUM, order). The aim is to *prompt* the startup, rather than telling participants exactly what to do; you want them to recognize the requirement for particular performance, rather than being told the starting steps. The information is in a situation brief rather than in readahead materials because you want to ensure that they work together, with their "coach" on the requirement. If everything is in the readahead, they may work independently and the Training Coordinator may not be able to observe their activities and interactions. A sample is shown in Figure 11.

Preparation Materials for Training Participants

The preparation materials to be developed include a detailed list of references for the performance requirements. This will probably include FM and ARTEP-MTP references. The purpose of the reference list is twofold:

1. to provide the doctrinal basis for the vignette objectives and
2. to provide further information for participants as they prepare.

Be selective, and be specific. You don't need to include every possible document that refers to the activity, only those that provide important and helpful performance information. And cite the section or chapter within the document that refers to the activity. With MTPs, list the tasks that are included in the vignette.

Situation Brief Script (Read aloud to participants.)

In preparation for this vignette, you should have familiarized yourself with the tactical materials and posted the overlay to the map. The brigade operations order has been distributed to subordinate units, and planning for the combined arms rehearsal has been completed. We are now ready to start planning the CSS rehearsal. Because I have allocated only two hours for the conduct of the CSS rehearsal, we only have time to rehearse critical CSS activities. The brigade commander has provided some guidance for planning the CSS rehearsal, as follows:

"Plan the rehearsal so that it is an opportunity to identify and practice what the brigade's service support staff will do during the deliberate attack. I am specifically interested in ensuring that the casualty evacuation piece is nailed down. Penetrating GRANITE and COPPER may generate some serious losses for 3-5 and 1-80, and I want to make sure we have ambulance exchange points (AXPs) and the other casualty evacuation pieces where we need them - and when we need them.

Second, I think division may launch us further west after we seize KIOWA, so plan to rehearse the CSS actions we'll take to rearm, refuel, and reorganize the task forces after KIOWA.

Make sure the S4 identifies any service support refinements that are necessary.

To assist you in developing your rehearsal plan, here is a *CSS Rehearsal Planning Worksheet*. (Hand out the *CSS Rehearsal Planning Worksheet*.) I will want you to be able to describe the details of your plan with me when you're done.

Do you have any questions before we begin?"

Figure 11. Sample situation briefing from a COBRAS vignette.

For some vignettes, you may also want to suggest specific preparation activities. For example, a rehearsal or a wargaming session would be helpful in preparing for an execution-oriented vignette, in order for the participants to become familiar with the situation and the plan. Even when there is little in the way of tactical preparation materials, the participants should get together ahead of time to discuss what they know and to make sure they have a common understanding of the situation. An emerging approach incorporates multimedia-based demonstrations of performance (Hoffman, 1997). If you are going to recommend preparation activities, the description should go in both the Training Coordinator materials and in the participant materials.

The preparation materials should include information to set the context for the vignette. One such type of context information is a scenario overview paragraph. The purpose is to help users understand quickly what the general situation is, and how the unit got itself to this point in the mission. This is where you hope to get the users out of their "real world" and into the vignette world and mindset. Prepare it at a level somewhat wider than just the training audience level, and refer to the mission situation rather than the training situation (e.g., "The 3 Bde, 55 ID, is preparing to defend NLT 170600 May 11"). This paragraph should tell the users (at a minimum):

- who or what they are in the vignette, as opposed to who they are in real life,
- where the action takes place,
- what is going on and what has just happened, and
- who/what the enemy is.

Another item that may be used to define the context is the definition of the vignette scope. The purpose of the scope is to help users understand how the vignette event fits into the underlying scenario, so that they can identify where in the process they will start and how they will know when they're done. It should have three parts:

- **Preceding events:** Describe what processes or activities have taken place before the vignette event. This may include a compressed or general list of what has already been developed.
- **Activities during the vignette:** Describe how the vignette begins (e.g., with receiving the commander's guidance), and describe what should happen during the vignette. This is not the same as the performance requirements list; it is much briefer and more general.
- **Ending point:** Describe how the vignette will end and/or what the outcome or products will be.

Yet another context-setting component is a description of vignette limitations or restrictions. These tell the users what they cannot or will not be permitted to do during the vignette. The purpose is to forewarn them about what they can and can't change and what they have to work with. Limitations and restrictions include such things as who they can't talk to such as to their division counterparts who are not represented during the vignette. It also includes what they can't change, such as the COA already selected and developed for them to wargame. You should mention only the things that you think they might want to do, and that they either shouldn't or won't be able to do.

Samples of all three of these items – scenario overview, vignette scope, and vignette limitations and restrictions – are shown in Figure 12.

Materials to Aid or Train Roleplayers and Interactors

The extent of this requirement will depend on the scope of the vignette. At the very least, "other participants" includes the Training Coordinator. Much of the Training Coordinator's guidance will be straightforward and relatively generic: notify the specific participants, distribute materials for preparation, arrange for the facility and other resources, and so on. However, if there is anything particularly important about the vignette setup, something that you fear will be misunderstood or overlooked, be sure to prepare guidance that emphasizes the requirement.

Vignette Scenario Overview: In this vignette, the brigade, 3 Bde, 55 ID (M), is preparing to conduct a deliberate attack (DATK) against an enemy motorized rifle regiment (MRR) defending out of contact. The brigade currently occupies an assembly area (AA). The vignette focuses on the staff activities required to plan a CSS rehearsal.

Vignette Scope: Prior to the start of this vignette, the notional staff has completed the planning process and has published orders, including annexes. It has also completed the plan for conduct of a combined arms rehearsal near the main command post (MAIN) using a terrain model. Using information contained in the division OPORD and the brigade OPORD, the staff must now plan a CSS rehearsal.

The commander's planning guidance for the CSS rehearsal will be given to the participants. They will then plan the rehearsal.

The vignette ends when the participants complete the rehearsal plan.

Restrictions and Limitations: Limitations on the participants' activities include:

- They are not expected to conduct the planning activities which preceded their actual entry into the process.
- They are not expected to develop support products such as a CSS execution matrix or the FSB synchronization matrix.
- They will not be able to interact with other brigade and battalion/TF staff to seek clarification of the annexes and support products.
- They will not be able to coordinate with subordinate units during their planning.
- They are not expected to conduct the rehearsal.
- They are not permitted to alter the brigade concept of support (COS) as they develop their rehearsal plan. Their plan must be developed based on the given COS and synchronization matrix.

Figure 12. Samples of scenario overview, vignette scope, and vignette limitations and restrictions from a COBRAS vignette.

Materials for the Training Coordinator should also include either an outline or the specific text for the initial orientation briefing and the situation brief. The tactical and technical contents of those briefings were described earlier.

Frequently, the most difficult part of the Training Coordinator's job is to be the vignette director, performance coach, and AAR facilitator. To give the Training Coordinator the extra advantage, the TSP provides performance requirement descriptions and AAR aids. Remind the Training Coordinator to study the vignette requirements and be familiar with the vignette conduct description, performance requirements, AAR questions, and response considerations.

For simulation-based vignettes, there will also be roleplayers, simulation interactors, and/or simulation site managers. You should not need to prepare instructions on how to control the simulation, as guidance already exists for most simulations, and simulation site managers generally have a training package to use. But you will need to provide the specific instructions on how to control the simulation for the vignette.

Simulation Materials

For vignettes that use virtual and constructive simulations, you will need to prepare the simulation initialization data, on the medium used by that simulation (usually tape or disk). This might include readiness level of the unit assets, locations, task organization, and even movement and firing capabilities. You should also provide a hard-copy listing of the initialization data, to be used in case the electronic medium fails or if the simulation is upgraded and the files are no longer completely compatible. If there is anything about the files that needs explanation or adjustment, instructions for the simulation site manager may also be needed.

Exercise Management Materials

Finally, the vignette TSP will require management guidance. This is directed to the Training Coordinator, and gives suggestions about how to set up the vignette, how much time to allow, how to keep the participants on track, how to answer specific questions, and so on. Only include what is necessary. For example, if there is only a minuscule chance that the participants could get off track, then don't waste space telling how to keep them on track.

Summary of Material Preparation

When you have completed this activity, you should have prepared the *specific* materials for the vignette. These materials incorporate realistic information concerning the situation, the enemy, and the unit itself (the METT-T). Figure 13 describes the TSP components for the COBRAS vignettes.

TSP Components and Structure for the COBRAS Brigade Staff Vignettes
Guide to Use and Implementation of COBRAS Vignettes: Overview of the vignette intents; how to select, prepare, and conduct
Training Coordinator Materials: Overview of the vignette scope, participants, and tasks; information on how to get ready; list of training objectives; how to initiate and control the vignette; AAR questions
Training Participant Materials: Overview of the vignette scope and tasks; information on how to get ready; list of training objectives and references
Preparation Materials: Selected tactical materials to provide the setting and situation for the vignette event
Execution Materials: Selected tactical materials to cue and shape the vignette problem
Job Aid Materials: Provided for selected vignettes to help participants perform the tasks
Sample Products: For use in illustrating general form and content of brigade staff products
Support Coordinator Materials: For use in simulation-supported vignettes; guidance for roleplayers and interactors; simulation tapes and documentation

Figure 13. Sample listing of TSP materials for COBRAS vignettes.

The final piece to construct is the vignette title. This should be a short handle (3-5 words) that describes what the vignette activity is. The title should give users a handy reference to *this* vignette that distinguishes it from other vignettes, can be remembered, and is appropriate to the vignette. It's the final piece because it has to capture (as much as possible) the foregoing decisions about the vignette event and coverage.

It is critical at this point to do an SME scrub of the vignette materials. This may take the form of a tryout (or pilot test) of the components, even though the rest of the TSP has not yet been assembled; you and your fellow developers will provide the information and guidance normally contained in the TSP. You will also roleplay the Training Coordinator, and SMEs who did not work on the vignette will represent the participants. Your focus should be:

- Could the participants understand what you (the TSP) told them to do? This applies to preparation activities as well as vignette conduct. If not, find out what the misunderstanding was, and correct the source of the error. It may be in the vignette limitations description, administrative brief instructions, situation brief, or the actual tactical materials.
- Could they do what they were supposed to do with the materials given them? Were the materials complete, correct, and useful? Be absolutely scrupulous in ensuring that there are no discrepancies or inconsistencies between components.
- Did they produce the product that you anticipated? If not, either adjust your expectation or correct the instructions to bring them into line.
- Could they understand and respond to the AAR questions? Were the response considerations appropriate, given their responses? If not, you should look closely at the objective, the performance requirements, the AAR questions, and the response considerations to discover the source of the disconnect. Ask the participants for input on why the questions did not produce the sorts of discussion that you expected them to.
- Was the training participant designation appropriate? If not, consider whether to add or drop participants, or whether to add or drop the cues for those people.
- Was this a vignette with some training value? If the SMEs think not, they may be able to suggest changes that would enhance the training value. Otherwise, you and your sponsor will need to take a close look at the vignette value.

If you are constructing a vignette that uses constructive or virtual simulation, you should go to the simulation to try out the vignette components. In addition to the focus points listed above, you will also need to:

- verify that everything that is required can be represented on the technology,
- verify that the exercise works on the terrain, and
- ensure that all specifications, friendly and enemy, are set appropriately.

In order to do this formative evaluation, you will need to build the preliminary files for the simulation. Although it will depend on the technology you use, the simulation files will probably include starting conditions, routes, graphics, decision points, and system capabilities and readiness

levels. You need to do these preliminary tryouts using the simulation before the trials with representative participants (Activity 4.3).

Activity 4.2 Assemble the training support package

Product/Outcome: The draft TSP.

Formative Evaluation: Expert reviews.

This activity brings together all of the design and development work and products that has gone on to date. This is the culmination of the development, leading up to the trial implementation and evaluation, revisions, and final product. During the previous activity, you prepared the vignette-specific components of the TSP. Where earlier, you might have indicated a need for Annex G or an INTSUM, now you have constructed the particular Annex G or INTSUM that the participants will use. It is not generic, but has plausible data and information that will cue the participants to perform the activities underlying the vignette objective.

These materials now need to be packaged. Packaging occurs on at least two levels. Some of it is tailored to the type of training you are constructing (e.g., vignettes), and some is a requirement of the training proponent. The latter category, which will not be addressed in this guide, includes classification markings, control numbers, proponenty identification and imprimatur, and so on. For those items, follow the guidance of TRADOC Regulation 350-70 (DA, 1995) and the training proponent for your vignettes.

Some of the most important considerations that affect your efforts for this activity are the time-honored instructional design considerations: to make the materials not only technically correct and complete, but also situation- and user-friendly. Broadly defined, the TSP is everything that is needed to support every aspect of implementation of the vignette. The remainder of this section contains some suggestions drawn from COBRAS experience about how to prepare a TSP. But you should be ready to improvise as necessary so that the TSP you develop is appropriate for the training you develop.

If you are an instructional developer, then you understand the principles of materials development that can make the program accessible; if not, the points below will highlight some important things that you can do to make sure that the users can, in fact, use the materials.

- The organization of the materials has to be almost precise and clear. The user must be able to find the critical information quickly. It should be clear to the Training Coordinator:
 - where things are,
 - who gets them, and
 - where they get them.
- While it may also be important to include background, explanation, justification, and so on, the critical how-to information must be clearly visible. Think about the difference between “just in case” presentation that includes all of the whys and wherefores, and “just

in time” presentation that is instructional and directive, with a separate section of reasons why.

- Don't be bound by too many traditional ideas of how training materials should look. You're writing for users, and the desktop publishing people have done a lot to help specify what it takes to make materials useful. You should be aiming for materials that are easy to read and understand, using graphics where they aid in understanding. *But, of course, be aware of and adhere to any layout and format restrictions that are already in place.*
- Some of the user guides put out by computer manufacturers and software writers serve as useful models. Spend some time looking at them for ideas, or look at the VTP or COBRAS TSP materials¹⁰. You'll probably notice lots of white space, use of graphics and look-up tables, icons and symbols that catch the user's attention, lines or borders that help to group relevant material, headers and footers that help the user know where he/she is, and so on.

Once the TSP is constructed, and before you move on to the trial (Activity 4.3), conduct a series of expert reviews of the technical content and the instructional features of the vignette. This will help to insure face validity as well as helping you to refine all of the components of the training program and package. There are several levels of expert review recommended:

- Individuals who are experts on the simulation and its components should make sure that your simulation controller instructions are clear and correct.
- Individuals who are experts on the doctrinal issues for the vignette event should review the materials to be used during preparation, vignette conduct, and the AAR for doctrinal accuracy.
- Someone who is familiar with the needs and resource constraints of the target units should check the advance materials and program management materials to see if instructions for duplication and distributing are clear.
- A review by instructional design experts can help you with the presentation of all of the information.

¹⁰ Copies of VTP materials may be viewed by contacting the Warthog O/C Team, 16th Cavalry, Fort Knox, Kentucky. COBRAS materials may be viewed by contacting the Force XXI Training Program, Fort Knox, Kentucky.

Activity 4.3 Evaluate the vignette and the training support package

Product/Outcome: The TSP, revised as necessary after evaluation.

Formative Evaluation: Trials with representative participants.

This final, major formative evaluation activity is to conduct a formal trial of the vignette. Trials involve representative personnel acting as participants and provide evidence of the usability of the materials. Data collection will be standardized and intensive, involving individual and group interviews and detailed observations of a wide variety of indicators. In order to ensure completeness and rigor, you should have a formal plan for the trials. Some of the important considerations include:

- Involve actual unit personnel and other target personnel in as many of the participant roles as possible, as well as in the role of Training Coordinator.
- Use TSP materials that are as close to “perfect” as you can get; don’t plan on using available developers to interpret the materials to the users (as you did in the Activity 4.1 roleplay). You want the users to diligently attempt to use the materials as they are intended to be used. But do be ready to interrupt the vignette if necessary to determine what went wrong or to work around a fatal error.
- Before the trial, develop questions about any vignette points you are unsure of. For example, “Was the Chemical Officer (CHEMO) needed? Did we need the intelligence annex? Was the job aid on rehearsals useful?”
- Collect information throughout the whole process of vignette preparation by the Training Coordinator and participants, as well as during the conduct of the vignette. Use both observations and informal discussions. After the training, you should interview the participants to get their reactions to the training content and materials.
- Use a variety of methods to collect the information: observations with prepared question lists, group discussions, structured interviews, questionnaires and surveys, video- and audio-tapes.
- The aspects of the program that are best examined during a trial include verification of assumptions and expectations, assessment or refinement of the methods for conducting the exercise, evaluation of the clarity and utility of the materials, and judgment of the completeness of the materials and absence of extraneous material.
- Document your evaluation trial plan: participants, process, data collection methods, and any caveats or alibis about how the trial is conducted and how that differs from the intended implementation.

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- Document your evaluation trial plan: participants, process, data collection methods, and any caveats or alibis about how the trial is conducted and how that differs from the intended implementation.

Summary: Phase 4

While formative evaluation is a continuous and ongoing process in all phases of development, it becomes highly visible during Phase 4. There is no good alternative to a trial with representative users in evaluating structured training. You owe it to the other developers and the participants, as well as to yourself, to insist on the resources for a trial, and then to plan and prepare carefully enough to justify the expense.

LESSONS LEARNED

This process for developing vignettes evolved over a period of two years on the ARI COBRAS projects. During that period, there were many occasions for revising the procedure, and many instances that reinforced the viability of the approach. The following points emerged as consistently important considerations during vignette design and development.

- ☛ Design and development must begin with a general selection of the event and target audience, but this decision should be kept open until after the event analysis is completed.
- ☛ The analysis of the extended event must be complete, and the outcomes must be allowed to influence the selection of the precise event and training audience.
- ☛ It is easy to make vignettes extensive. The difficult but necessary effort is to keep them focused on a small group and a selected, limited event. Without this focus, the vignette becomes a “little war” and the purpose of having easily implemented focused exercises is defeated.
- ☛ More than one thorough review of all of the tactical materials must be conducted in order to ensure that they are 1) correct and consistent; 2) necessary and sufficient for performance; and 3) understandable by the participants. These reviews cannot consist only of reading the materials, but must also include tryouts with SMEs and representative users.
- ☛ A thorough review of the TSP by instructional designers must be conducted to ensure that the package is usable and comprehensible.
- ☛ A rigorous trial of the full TSP, under full implementation conditions, must be conducted to ensure that the entire vignette can be implemented by the intended user, with the intended outcomes.

The authors and the COBRAS developers are convinced that the approach and the lessons stated above will assist other training developers in constructing instructionally sound and valuable structured exercises for small groups.

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Appendix A

Acronyms

AA	Assembly Area
AAR	After action review
AFRU	Armored Forces Research Unit
ARI	Army Research Institute
ARTEP	Army Training and Evaluation Plan
AXP	Ambulance Exchange Point
BBS	Brigade/Battalion Battle Simulator
BDE	Brigade
BN	Battalion
CDR	Commander
CHEMO	Chemical Officer
COA	Course of action
COBRAS	Combined Arms Operations at Brigade Level, Realistically Achieved through Simulation
COS	Concept of Support
CP	Command post
CSS	Combat Service Support
DA	Department of the Army
DATK	Deliberate Attack
DST	Decision Support Template
FM	Field Manual
FSB	Forward Support Battalion
INTSUM	Intelligence summary
METT-T	Mission, enemy, troops, terrain, time
METT-TC	Mission, enemy, troops, terrain, time, communications
MRR	Motorized Rifle Regiment
MTP	Mission Training Plan
NTC	National Training Center
O/C	Observer/Controller
OIC	Officer in Charge
OPFOR	Opposing force
OPORD	Operations order
RC	Reserve Component

Appendix A

Acronyms

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MTP	Mission Training Plan
NTC	National Training Center
O/C	Observer/Controller
OIC	Officer in Charge
OPFOR	Opposing force
OPORD	Operations order
RC	Reserve Component

R&D	Research & Development
RCVTP	Reserve Component Virtual Training Program
S1	Personnel Officer
S2	Intelligence Officer
S3	Operations Officer
S4	Logistics Officer
SAT	Systems Approach to Training
SIMUTA	Simulation-Based Multiechelon Training Program for Armor Units
SIMUTA-B	Simulation-based Multiechelon Training Program for Armor Units - Battalion Exercise Expansion
SITREP	Situation Report
SME	Subject matter expert
TACFAX	Tactical fax
TF	Task Force
TOC	Tactical Operation Center
TRADOC	U.S. Army Training and Doctrine Command
TSP	Training support package
USAARMC	United States Army Armor Center
VTP	Virtual Training Program
WARNO	Warning Order
XO	Executive Officer

Appendix B

Procedure for Development of Structured Simulation-Based Training

OUTLINE OF THE METHODOLOGY

Phase 1. Prepare Initial Decisions

Activity 1.1 Document Initial Scope Decisions

**Product or
outcome**

Documentation of initial decisions on vignette scope.

**Formative
evaluation**

Internal review, proponent review.

Decision areas
(see page 15)

1. Target training audience
 2. Scenario context
 - Mission type
 - Enemy type
 - Terrain/locale
 - Unit type
 - Appropriate training environment (e.g., simulation type)
 3. Other, e.g.:
 - Vignette time limits
 - Linkages to other vignettes
 - Trainer and other resources
-

Activity 1.2 Select Vignette Event and Participants

**Product or
outcome**

Initial description of the vignette event and participants.

**Formative
evaluation**

Internal review, proponent review.

*Limiting the
scope
(see page 17)*

1. Performance requirements
 2. Time
 3. Number of participants
-

Activity 1.3 Outline Vignette Presentation model

**Product or
outcome**

Description of the implementation design for the vignette.

**Formative
evaluation**

Internal review, proponent review.

*Considerations
(see page 18)*

1. TSP components
 2. Who is involved in implementation
 3. When/where it should be implemented
-

Phase 2. Design Vignette Scenario

Activity 2.1 Analyze Event Context and Participation Requirements

Product or outcome

- Outline of activities before, during, and after the vignette event.
 - Description of roles of all persons involved before, during, and after the vignette event.
-

Formative evaluation

Internal review, proponent review, SME review and walkthrough

Event analysis information
(see page 21)

- WHO are the key players,
 - WHERE would they be during the event,
 - WHAT do they use as input for activities preceding the target event and for the event itself,
 - HOW do they use the inputs,
 - WHAT do they produce, and
 - WHY are they doing this, what led to this event.
-

Activity 2.2 Determine Vignette Scope and Specific Participants

Product or outcome

- Description of cues and products (inputs and outputs).
 - Designation of target participants and their actions
 - Specification of event beginning and ending points.
-

Formative evaluation

Internal review, proponent review; SME review and walkthrough

Drawing the line
(see page 22)

- Decide what actions, participants, and products to include
 - Decide what and who to “script out”
 - Limiting goals: 3-7 participants, 2-3 hours
-

Activity 2.3 Determine Vignette Inputs and Method for Delivery

Product or outcome • Description of vignette tactical inputs and inputs from nonparticipants.
• Description of how the inputs will be provided.

Formative evaluation Internal review, proponent review; SME walkthrough

Considerations • Provide information that will prompt participants to perform
(see page 23) • Provide a minimum – only what is needed
• Format to balance realism in inputs against unnecessary detail
• Account for (provide) input from nonparticipants

Activity 2.4 Describe Specifications of Tactical Products

Product or outcome Description of the products

Formative evaluation Internal review, proponent review, SME walkthrough

Considerations • Not required for all vignettes; more common for planning or preparation
(see page 24) events than for execution events
• May be real-world product or an invented outcome

Phase 3. Prepare Detailed Training Objectives

Activity 3.1 Identify Performance Requirements Sources, Domain, and Standards

**Product or
outcome**

Performance requirements and standards

**Formative
evaluation**

Internal review, proponent review

Considerations
(see page 26)

- Obtain most recent approved versions of the sources
 - Check for performance descriptions, including how to perform, under what conditions, standards
-

Activity 3.2 Draft Vignette Objective and Performance Requirement Statements

Product or outcome

Vignette objective and list of performance requirements

Formative evaluation

Internal review, proponent review

Considerations
(see page 27)

- The vignette objective tells what the vignette training event is and generally what we want to see the participants do
 - The performance requirements statements tell specifically what the participants will do or generate during the vignette
 - Describe the major chunks of behavior or products that are involved in accomplishing or meeting the objective
 - Condensed from list in Activity 3.1 to form a list of 4-10 statements
 - Tell what has to be accomplished, rather than how to get there
 - For simulation-based vignette, ensure that the activity can be cued, performed, and observed in the simulation environment
-

Activity 3.3 Draft AAR Aids

**Product or
outcome**

List of AAR questions tied to performance requirements, with considerations for responses

**Formative
evaluation**

Internal review, proponent review

Considerations
(see page 28)

- Performance requirements focused on what had to be accomplished; the AAR will focus on discussion of how to accomplish those things.
 - One approach:
 - A set of leading questions to guide the discussion among participants after the vignette is completed
 - Key considerations for answers to the AAR questions or discussion points
-

Phase 4. Develop Training Support Package

Activity 4.1 Prepare Training Support Package Components

**Product or
outcome**

TSP components, including (at a minimum):

- ✓ tactical and other scenario materials,
 - ✓ unit preparation materials (training participants),
 - ✓ materials to aid or train other participants,
 - ✓ simulation materials (as needed), and
 - ✓ exercise management materials.
-

**Formative
evaluation**

Proponent review; review by representative users; developer walkthrough

*Tactical and
other scenario
materials
(see page 32)*

- Items that set the conditions for the vignette, provide cues at the start of and during the vignette, and serve as job aids in examining outcomes of the vignette
 - Keep it simple and focused on the vignette objective
 - Some information may be presented in initial orientation briefing and/or situation brief
 - May include sample products for their comparison
 - May include job aids to help them structure how they perform, when the process is not yet very structured; or to give them the tools they normally have
 - unit preparation materials (training participants)
 - materials to aid or train other participants
 - simulation materials (as needed)
 - exercise management materials
-

Continued on next page

Activity 4.1 Prepare Training Support Package Components, Continued

*Unit preparation
materials*

(see page 35)

- Purpose is to provide evidence of doctrinal basis for the vignette objectives and to provide further information for participants as they prepare
- Includes detailed list of references for the performance requirements
- May include specific preparation recommendations
- Includes context-setting information:
 - Who (and what) they are in the vignette (as opposed to who they are in real life)
 - Where the action takes place
 - What is going on and what has just happened
 - Who/what the enemy is
- Includes statement of vignette scope:
 - Preceding events: Describe what has taken place before the vignette event. This may include a compressed or general list of what has already developed.
 - Activities during the vignette: Describe how the vignette begins and what will (or should) happen during the vignette. This is not the same as the performance requirements list; it is much briefer and more general.
 - Ending point: Describe how the vignette will end and/or what the outcome (products) will be.
- Includes vignette limitations and restrictions

Continued on next page

Activity 4.1 Prepare Training Support Package Components, Continued

Materials to aid or train other participants (see page 37)

- Includes guidance for Training Coordinator:
 - Administrative requirements (notify the specific participants, distribute materials for preparation, arrange for the facility and other resources)
 - Outline or the specific text for the initial orientation briefing and the situation brief
 - Performance requirement descriptions and AAR aids and how to use them
 - For simulation-based vignettes, vignette-specific instructions for roleplayers, simulation interactors, and/or simulation site managers
-

Simulation materials (see page 39)

- For vignettes that use virtual and constructive simulations:
 - Includes simulation initialization data, on the medium used by that simulation
 - Includes hard-copy listing of the initialization data, to be used in case the electronic medium fails or if the simulation is upgraded and no longer completely compatible
-

Exercise management materials (see page 39)

- Directed to the Training Coordinator:
 - How to set up the vignette
 - How much time to allow
 - How to keep the participants on track
 - How to answer specific questions
-

Continued on next page

Activity 4.1 Prepare Training Support Package Components, Continued

- Pilot test*
- Tryout of completed components, not the entire TSP
 - (see page 39) • Uses vignette developers to provide guidance usually contained in the TSP; focus is on the vignette content
 - Use SMEs as training audience
 - Questions to be answered:
 - Could the participants understand what they were to do?
 - Could they do what they were supposed to do with the materials given them? Were the materials complete, correct, and useful?
 - Did they produce the product that you anticipated?
 - Could they understand and respond to the AAR questions? Were the considerations appropriate, given their responses?
 - Was the training participant designation appropriate?
 - Was this a vignette with some value?
 - For simulation-based vignettes:
 - Verify that everything can be represented on the technology
 - Verify that the exercise works on the terrain
 - Ensure that all capabilities and specifications, friendly and enemy, are set appropriately
-

Activity 4.2 Assemble the Training Support Package

**Product or
outcome**

The draft TSP

**Formative
evaluation**

Expert reviews

*Design
considerations
(see page 41)*

- Pay attention to proponent requirements (e.g., classification markings, control numbers, proponenty identification and imprimatur)
 - The organization of the materials has to be precise and clear
 - The user must be able to find the critical information quickly
 - Aim for materials that are easy to read and understand, using graphics where they aid in understanding
-

*Expert review
considerations
(see page 41)*

- Individuals who are experts on the simulation and its components should make sure that simulation controller instructions are clear and correct.
 - Individuals who are experts on the doctrinal issues for the vignette event should review the materials to be used during preparation, vignette conduct, and the AAR for doctrinal accuracy.
 - Someone who is familiar with the needs and resource constraints of the target units should check the advance materials and program management materials.
 - A review by instructional design experts can help you with the presentation of all of the information.
-

Activity 4.3 Evaluate the Vignette and the Training Support Package

Product or outcome

The TSP, revised as necessary after evaluation

Formative evaluation

Trials with representative participants

Considerations for the trial (see page 43)

- Involve actual units and other target personnel in as many of the roles as possible.
 - Use TSP materials that are as close to “perfect” as you can get; don’t plan on using available developers to interpret the materials to the users. But do be ready to interrupt the vignette if necessary to determine what went wrong or to work around a fatal error.
 - During vignette preparation and the conduct, collect data (observations, opinions and suggestions, discussions of ways of fixing things that aren’t yet right). After the vignette, you will interview the participants to get their reactions to the training content and materials.
 - Use a variety of methods to collect the information (e.g., observations, group discussions, structured interviews, questionnaires and surveys, video- and audio-tapes).
 - The aspects of the program that are best examined during a trial include
 - Verification of assumptions and expectations
 - Assessment or refinement of the methods for conducting the exercise
 - Evaluation of the clarity and utility of the materials
 - Judgment of the completeness of the materials and absence of extraneous material.
 - Document your formative evaluation trial plan: participants, process, data collection methods, and any caveats or alibis about how the trial is conducted and how that differs from the intended implementation.
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