SKILLS APPLICATION EXAM (SAE)
PRACTICE TEST #3
INSTRUCTIONAL DESIGN
GMG DATA CENTER OPERATIONS

ASSOCIATION FOR TALENT DEVELOPMENT
Scenario Narrative

Executives at GMG Training Center, a government contractor working for government IT infrastructure, discovered that fewer data center operators are achieving certification following instructor-led training (ILT). Additionally, test scores, while passing, are dropping. The executives reached out to one of their internal talent development professionals for assistance. The talent development professional’s task is to determine the root cause of the dropping test scores and identify the best course of action to correct the problem.

The talent development professional completed a root cause analysis and determined that the implementation of pre-course materials and preparatory training, specifically including content addressing system planning and operation, would be helpful.

The data center program manager has expressed a preference for online training. The scope of work requires a training needs analysis including surveys and interviews, design documents, a course outline, a resource analysis, and a usage report.

Supporting Documents:
1. Survey Information
2. Training Outline
3. Design Document and Resource Analysis
4. Web-Based Training Usage Analysis Report
Supporting Document 1: Survey Information

SURVEY ONE

The first survey targeted 105 trainers, subject matter experts, and contractor and program personnel. There was a 31% return rate. The survey was introduced with the following Purpose Statement:

“This survey is to collect data from key stakeholders for the development of a data center operator overview lesson; analysis of this data will allow the GMG Training Center to develop a course of instruction that meets the training needs of the data center program.”

Survey participants were presented with 25 course topics and asked to rate each topic on a Likert scale ranging from 0 (Strongly Disagree) to 4 (Strongly Agree) in relation to their perceived need for the topic.

SURVEY ONE ANALYSIS

Sixty-two percent (62%) of the survey respondents focused on procedure compared to 19% of respondents who focused on policy. The current administrators emphasize policy. Based on the analysis, the talent development professional concluded that both procedure and policy should be emphasized equally in order to address the needs of both audiences and to follow the program administration's guidance.

SURVEY TWO

The second survey was specifically designed to elicit comments from 210 experienced data center operators. The return rate was 17%. Those who responded provided substantial feedback.

SURVEY TWO ANALYSIS

Sixty-five percent (65%) of respondents said they would have appreciated pre-course materials or an opportunity for preparatory training. Several respondents requested a "manual that describes the system elements and their inter-relationships" and "covers the basic system layout and capabilities." Early provision of such a manual would allow more time to learn the material. The primary concern of these comments is that broad and complex material is presented in a short time.

Topic-level data from this survey indicate that the typical student for the data center operator course feels that the high-level overview of history and policy is sufficient; what’s lacking is content addressing system planning and operation. More real-world examples were requested.

INTERVIEW WITH DATA CENTER OPERATIONS PERSONNEL

One of the key groups to receive both surveys was the data center operators – the network operation crews. The majority of comments and preferences elicited during the interviews are reflected in the survey results discussed previously in this document. Additionally, the interview revealed two perceived weaknesses in the existing training material: 1. Course content is not "officially sanctioned" by a service with established education/evaluation standards (they went on to state that this is neither inherently bad nor actually required). 2. Network operation crews recognize that it is difficult to keep up with the rapidly changing technology, so the ability to easily update course content frequently will correct the perceived weakness that the course content is out of date.
When asked to substantiate this perception, or to at least *offer* a specific example, they were unable to provide detailed information. As a result, the primary focus is on the surveys they returned.

**PROPOSED COURSE OF ACTION**

The initial guidance was that the proposed data center training event would be based on the current data center operator course and would target domestic, international, and joint audiences comprising both new operators and experienced, certified personnel requiring refresher training.

Based on this guidance, the talent development professional conducted the surveys and interviews described above and determined that Web-based training is an efficient and cost-effective way to satisfy the training need and minimize cost and delay when scheduled or unscheduled system maintenance occurs and content revision is required.

The expressed interest in procedure-focused pre-work to prepare candidates for initial certification training will be addressed by providing study aids and a student workbook, which will be downloadable from the training website.

The enduring interest of the program administrators in policy-focused training will be preserved through re-use of the existing course material, which all parties deem sufficient.

The Web-based training module will address the survey topics that generated the most interest and will establish subject matter mastery through progressively descriptive interactive exercises intended to produce a data center operator overview to improve test scores and achieve a higher yield of certified operators per training event.

Estimated Labor Hours: 500 hours for 2.5 hours of Web-based training, covered in four modules.

**Supporting Document 2: Training Outline**

*Terminal Learning Objective*: Recall and demonstrate knowledge of the data center’s history, scope, geopolitical impact, organizational structure, mission, roles, components, and terminology.

*Course Description*: This Web-based training (WBT) course provides a basic introduction to data center operator concepts to the joint community. This WBT course also acts as a refresher for recertification of contractors and program personnel.

**MODULE 1: Data Center Mission and Fundamentals**

**TERMINAL LEARNING OBJECTIVES:**
- Demonstrate an understanding of the historical significance of the data center’s operation and its current impact on geopolitical affairs.
- Recognize data center terminology and types.
- Identify data center missions and roles.

**DESCRIPTION:**
Module 1 will be a high-level look at the basic system architecture, fundamentals of data centers, geopolitical implications, and the necessity of international cooperation. Course participants will be introduced to current and potential threats, the tactical and strategic missions, and the role of the data center operator.
MODULE 2: Current Systems and Communication

TERMINAL LEARNING OBJECTIVES:
- Identify the types of data center components and their capabilities and limitations.
- Demonstrate an understanding of system communications components and protocols.
- Demonstrate an understanding of security procedures.

DESCRIPTION:
This module will introduce course participants to the current capabilities and limitations of data center components and will discuss the current state of the data center, sensors, and support equipment. This module will also describe data center communication, connectivity, security, and safety practices.

MODULE 3: Operational Concepts and Command and Control

TERMINAL LEARNING OBJECTIVES:
- Demonstrate an understanding of data center operational concepts, definitions, and command relationships.
- Demonstrate recognition and understanding of how events, weather, hazards, and logistics affect command and control relationships.
- Demonstrate an understanding of the planning and execution responsibilities of mission personnel at the command and operation levels.

DESCRIPTION:
This module will introduce participants to command and control procedures and current contingency plans. This module will also take a high-level look at the planning, coordinating, and integrating role performed by command and control personnel. Mission profiles are to be described in scenarios.

MODULE 4: Executing the Mission

TERMINAL LEARNING OBJECTIVES:
- Apply network operations principles to a specific scenario.

DESCRIPTION:
This module provides role-based scenarios with details describing mission planning, support, and management processes. An interactive review game will conclude the lesson by reviewing the learning objectives of all course modules.
Supporting Document 3: Design Document and Resource Analysis

**Type: Web-Based Training (WBT)**

**Interactivity Levels = 2**
Level 2: This involves the recall of more information than Level 1 WBT and allows the student more control over the lesson's scenario through screen icons. Typically, Level 2 is used for non-complex operations and maintenance lessons.

**Resource Analysis**
Resources are *critical* throughout this process; listed below are the projected resource requirements.

**Equipment/Software (e.g., computers)**
- Laptops (Quantity: 2)
- Desktops (Quantity: 4)
- Most current e-learning software (Quantity: 1)
- Courseware will be delivered to existing training centers.

**Facilities/Learning Management System**
The learning management system, already in place, will host the WBT with security access.

**Funds**
The initial equipment and software cost estimates are:
- IT Equipment: $5,500 USD
- IT Software: $3,000 USD

**Personnel**
Full-time personnel are already in place to develop the training: talent development professionals, computer programmers, videographers.

**Time**
The delivery date will depend on the course of action selected. The estimated WBT course length will be 2.5-3 hours, covered in four modules. Resources needed to meet the original scheduled delivery date must be procured no less than three months prior to that date.

**Conclusion**
The data center operations community wants WBT. The evaluation measures in the WBT should focus on subject matter comprehension and recall. The order of topics is:

- **Topic 1** - Mission and Fundamentals
- **Topic 2** - Systems and Communications
- **Topic 3** - Operational Concepts of Command and Control
- **Topic 4** - Mission Execution

**Recommended Course of Action:** Standalone WBT introducing data center operations. This will meet the need for new data center operator orientation and satisfy the requirement for experienced operator refresher training.

**Execution = Easy**
EXECUTIVE SUMMARY

This document presents the Web-Based Training (WBT) Analysis Report for the following WBT: Data Center Operator Overview

The data center operator overview course is an introductory, Level 2 (knowledge, comprehension, and some application), standalone, Web-based course that provides joint-community personnel with a basic understanding of data center operations concepts and terminology. There are no prerequisites, and there are currently no follow-on courses, though it is strongly encouraged that students complete the WBT before attending other courses.

This course is hosted by the training partner on their learning management systems (LMS). A link for students takes them to the course on the training partner’s system.

Data for this report were collected for a period of one year. During this collection period, 80 course certificates were awarded. These graduates were surveyed, and there was a 70% survey return rate (57 surveys).

KEY FINDINGS

Following are the key findings documented in the collected surveys:

- 54% of all students are staff; 45% are executive; and 1% is other (retired).
- 97% of survey respondents either "agree" or "strongly agree" that the data center operator overview Web-based training provides a solid introduction to mission system operations.
- 100% of survey respondents either "agree" or "strongly agree" that the quizzes and final exam reflect the course material presented.
- 95% of survey respondents either "agree" or "strongly agree" that course navigation and structure are easy to follow.
- 95% of survey respondents either "agree" or "strongly agree" that course depth and length is appropriate.
- 93% of survey respondents either "agree" or "strongly agree" that they would recommend this course to others.
- 80% of survey respondents have been in their position for <3 years; 59% have been in their position for <1 year.
- 35% of survey respondents learned about the course through the Professional Bulletin; 17.5% from their supervisor; 20% from co-workers or friends; 20% selected "other"; and 7.5% learned of the course from organization course notices.
- The average course completion time is 6.09 hours.
- A continuing challenge for this course is still that of 1) visibility and 2) marketing.
1. What survey data supports a Web-based training solution? Choose ONE.
   A. 14% of survey responses focused on policy.
   B. 57% of survey responses focused on procedure.
   C. 65% of survey responses would have appreciated pre-course materials.
   D. No survey data supported this proposed solution.

2. The Key Findings in “Supporting Document 4: Web-Based Training Usage Analysis Report” assess which of the following? Choose ONE.
   A. ROI
   B. Attitude
   C. Behavior
   D. Learning transfer

3. Which of the following best describes the evaluation in "Supporting Document 4: Web-Based Training Usage Analysis Report?" Choose ONE.
   A. Formative evaluation
   B. Level 1 evaluation
   C. Level 2 evaluation
   D. ROI

4. Which element of the case study most clearly demonstrates how learning is connected to the overall business strategy? Choose ONE.
   A. The data center program manager has expressed a preference for online training.
   B. An interactive review game will conclude the lesson by reviewing the learning objectives of all course modules.
   C. 97% of the survey respondents either "agree" or "strongly agree" that the data center operator overview Web-based training provides a solid introduction to mission system operations.
   D. The primary concern of these comments is that broad and complex material is presented in a short time.

5. In addition to the Web-based training, which resource would be most effective to leverage support in the rapidly evolving workplace? Choose ONE.
   A. Job board
   B. Blog post
   C. Social network
   D. Community of practice

6. Which supporting document best supports the talent development professional's integration of emerging and existing technology in this project? Choose ONE.
   A. Supporting Document 1: Survey Information
   B. Supporting Document 2: Training Outline
   D. Supporting Document 4: Web-Based Training Usage Analysis Report
7. Which of the following would be the best option for C (condition) when converting the Module 4 learning objective to A-B-C-D format? Choose ONE.
   A. Successful data center operations applied 90% of the time
   B. The opportunity to choose a role
   C. Access to the system control
   D. A simulated real-life environment

8. Which of the following findings is most likely to lead to modification of the program? Choose ONE.
   A. Respondents' views of exam reflecting course material
   B. Data around average course completion time hours
   C. Responses regarding length and depth of program
   D. 80 course certificates awarded in the first year

9. The terminal learning objective reads as follows: "Recall and demonstrate knowledge of the data center's history, scope, geopolitical impact, organizational structure, mission, roles, components, and terminology." Which statement best describes the terminal learning objective? Choose ONE.
   A. This is an effective terminal learning objective as it addresses all of the module learning objectives.
   B. This is an incomplete terminal learning objective as it is missing elements of the A-B-C-D model from its construction.
   C. The terminal learning objective is difficult to measure because there are too many subordinate module objectives to enable mastery of the terminal learning objective.
   D. The terminal learning objective meets all the criteria of a SMART objective.

10. Which of the following best describes the training program learning objectives? Choose ONE.
    A. They are written using the SMART format, as opposed to the A-B-C-D format.
    B. They contain clearly defined behaviors.
    C. They encompass behaviors that come primarily from the knowledge and affective domains.
    D. They accurately gauge effective performance of each objective.

11. Based on Module 1’s terminal learning objectives, which Bloom’s taxonomy levels should the instructional designer focus on? Choose THREE.
    A. Analysis
    B. Application
    C. Comprehension
    D. Evaluation
    E. Knowledge
    F. Synthesis

12. The Survey Two Analysis indicated that “sixty-five percent (65%) of respondents said they would have appreciated pre-course materials or an opportunity for preparatory training.” Based on this information, what are the best modifications to the design of the training solution? Choose TWO.
    A. Ask participants to bring in an article related to the history of data centers.
    B. Develop a module that should be completed before progressing to classroom sessions.
    C. Require a pre-course drag-and-drop activity that helps participants understand terminology.
    D. Require participants to attend a training session provided by an outside vendor.
    E. Require participants to meet with their direct supervisor in advance of training to discuss data center history.
13. Based on the terminal learning objectives for Module 1, which types of assessment strategies would be most appropriate? Choose TWO.

   A. Multiple-choice
   B. Essay questions
   C. Simulation
   D. Observation
   E. Work product

14. The terminal learning objective for Module 4 allows participants to learn in which of the following ways? Choose TWO.

   A. By making mistakes
   B. In a dynamic environment
   C. With motivation
   D. With other participants
   E. During a hazardous process

15. The learning objectives for the training and the training modules represent which of the following levels of behavior? Choose THREE.

   A. Knowledge
   B. Comprehension
   C. Application
   D. Analysis
   E. Synthesis
   F. Evaluation

16. “Supporting Document 4: Web-Based Training Usage Analysis Report” demonstrates that the evaluation surveys had which of the following purposes? Choose THREE.

   A. To reinforce learning
   B. To indicate the pace and sequence
   C. To determine the content’s adequacy
   D. To identify the learning being used on the job
   E. To improve the design of the learning experience
   F. To describe the learning experience of the student

17. Which of the following factors contributed to the proposed course of action? Choose TWO.

   A. Budget
   B. Distance
   C. Learning climate
   D. Size of the group
   E. Time

18. Which of the following are the best options to add informal learning to the proposed solution? Choose THREE.

   A. Blogs
   B. Coaching
   C. Search engines
   D. Trial and error
   E. Webinars
   F. Wiki
19. Which of the following factors best support the talent development professional's instructional strategy choice? Choose THREE.

A. Facilities, equipment, and material for online training were in place.
B. Labor estimates for developing online instruction were inaccurate.
C. Online training was more expensive than classroom training.
D. The "shelf life" of training content remained constant.
E. There was a sufficient level of consistency in content and delivery.
F. The target audience expressed a preference for instructor-led training.

20. The key findings documented in “Supporting Document 4: Web-Based Training Usage Analysis Report” provide data from which type of evaluation? Type your answer in the box below.