



MEL & ENID ZUCKERMAN COLLEGE OF PUBLIC HEALTH

Western Mining Safety and Health Training Resource Center

STORYBOARDING DESIGN ACTIVITY

A Scenario Design Process for Emergency
Preparedness Exercises and Evaluation

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SCENARIO: Compose a Narrative

Our scenario will simulate a normal work shift leading up to a situation that could require an emergency response. The narrative provides a brief description of world activities and context to ground the scenario. The narrative has two important functions. First, it sets the mood for the game experience. Learners must be motivated to participate in gameplay and invested in its outcomes. The narrative captures their attention and makes them want to continue. Second, the narrative sets the preconditions and assumptions upon which learners will make key decisions later. A good narrative will typically have the following properties:

- Composed of one to five paragraphs.
- Illustrates a specific and unambiguous world setting.
- Uses present tense with short sentences lending immediacy and tension.
- Develops situation chronologically with times and causality clearly indicated.
- Emphasizes workplace hazards and changes to the environment.

ELABORATION: Detail Events and Expected Actions

Step 1: Detail unfolding events

Developing a good training exercise is much like writing a play for community theatre. In writing a play, the playwright organizes events into acts and sequences which form a story. Similarly, our scenario is defined by key events, both large and small, which move our story along. The events should proceed logically from the establishing narrative (above). It may be helpful to think of these events as problems requiring realistic actions to overcome. The problems and actions themselves should also align to the learning objectives of the exercise.

Case studies, such as potentially fatal events or fatality reports, often provide motivation and basis for the events to include in the scenario. In summary, elaboration happens in two stages:

- First, identify key events – the rising or suspense generating actions in the story sequence – that can logically follow from the narrative.
- Second, decide which of these events will lead to actions and outcomes relevant to the exercise learning objectives.

Step 2: List Expected Actions

Expected actions typically follow from operating procedures and response plans. To demonstrate competency, learners must take these actions in response to the events outlined in Step 1. Research suggests that there are three classes of potential actions that learners may carry out (Brown, 2015):

- **Discovery:** Explore, gather, verify information using appropriate equipment and SOPs.
- **Analysis:** Consult plans, communicate, negotiate, and interpret events and environment.
- **Practicum:** Make a decision to mitigate, implement a response plan, defer, or ignore.

MITIGATION: Supply Mitigation Strategies

A mitigation is a specific type of action, project, activity, or process taken to reduce or eliminate long-term risk to people and property from hazards and their impacts.

Examples of Hazard Mitigations include the following:

- Notification Protocols
- Warning Systems
- Engineering Controls

CONSEQUENCE: Derive Action-Consequence Matrix

When measuring the consequences of an action, we must survey *four considerations*. This exercise will help learners understand and explore oft-unrealized consequences. Consider the following matrix:

The Action-Consequence Consideration matrix		Action	
		If I do	If I don't
Consequence	What will happen	What will happen if I do?	What will happen if I don't?
	What won't happen	What won't happen if I do?	What won't happen if I don't?

Actions. In the decision-making process, the learner's potential output actions are not always obvious or well-defined. Key considerations include:

- The will to act or not act is central to many decisions.
- Non-action is itself an implicit and often unrealized decision.
- Actions can involve passively accepting decisions or actions of others.

Consequences. When taking an action, there are consequences which may be good or bad for the learner and, independently, good or bad for other worker, responders, or bystanders. Research indicates that consequences must be realized in an exercise's outcome, sometimes called a *denouement*, to reinforce learning (Brown, 2015).

Scenario and Setting:

[Brief narrative description which stimulates a response to unfolding events.]

10. _____
9. _____
8. _____
7. _____
6. _____
5. _____
4. _____
3. _____
2. _____
1. _____

Rising: Unfolding Events

Falling: Response Strategies

Expected Actions/Mitigation Actions:

1. _____
2. _____
3. _____

Action Consequences:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

SCENARIO: Compose a Narrative

ELABORATION: Detail Events and Expected Actions

UNFOLDING EVENTS	EXPECTED ACTIONS

MITIGATION: Supply Mitigation Strategies

CONSEQUENCE: Derive Action-Consequence Matrix

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