Assessment Methodology Matrix Examples

Vilma Perez-Atwood

Kevin O'Connell

Members : Committee on Accreditation

Workshop Goal

Introduce a new tool to help agencies select the justifiable assessment methodologies when developing certification exams.

Workshop Objectives

- Introduce the COA's AMM Examples.
- Explain the AMM Examples development.
- Describe how the AMM Examples can be used.
- Answer questions about the AMM Examples.

Test Development Criterion 2

The agency shall have the ability to completely test the level(s) of each applicable standard with justifiable test methodologies.

THE AMM EXAMPLES

An Introduction

What are the AMM Examples?

- A tool or job aid to :
  - To assist accredited agencies when selecting test methodologies for each JPR
  - To assist COA members when reviewing agency submissions of AMMs and to help foster consistency among the COA

A Sample AMM Example

65NFPA 470: 2022 Edition, Chapter 5 Hazardous Materials/WMD Awareness Level Responders (Pro Qual)

Section	Cognitive	Psychomotor	Product	Process
5.2.1 Recognize and identify the hazardous materials/WMD and hazards involved in a hazardous materials/WMD incident, given a hazardous materials/WMD incident and approved reference sources, so that the presence of hazardous materials/WMD is recognized, and the materials, their hazards, and associated harm are identified.				
5.2.1	X			X
5.2.1 (A) Requisite Knowledge. What hazardous materials (dangerous goods internationally) and WMD are; the differences between hazardous materials/WMD incidents and other emergencies; definitions of hazard classes and divisions of hazardous materials/WMD; ways in which hazard classes and divisions are harmful to people, the environment, animals, and property; general routes of entry for human exposure to hazardous materials/WMD; sights, sounds, and odors that might indicate the presence of hazardous materials; limitations of using senses to determine presence of hazardous materials/WMD; indicators to the presence of hazardous materials including container shapes included in the ERG, NFPA 704 markings, globally harmonized system (GHS) markings, placards, labels, pipeline markings, other transportation markings [including UN/NA identification number marks, marine pollutant mark, elevated temperature (HOT) mark, commodity marking and inhalation mark], shipping papers and emergency response information and the person responsible for the shipping papers in each mode of transportation (air, highway, rail, and water), where shipping papers are found during emergencies and nonemergency situations in each mode of transportation, and other indicators (including military hazardous materials/WMD markings, special hazard communication markings, and special container markings); difficulties encountered in determining the specific names of hazardous materials/WMD at facilities and in transportation; accessing response information from the Emergency Response Guidebook (ERG) (current edition) using the alphabetical index of chemical names, numerical index of identification numbers, table of markings, labels, and placards, or container identification charts; and types of hazard information available from the ERG, safety data sheets (SDS), shipping papers and emergency response information, and sources for obtaining the names of hazardous materials/WMD at a facility.				
5.2.1(A)	X			
5.2.1 (B) Requisite Skills. Recognizing indicators to the presence of hazardous materials/WMD; identifying hazardous materials/WMD by name, UN/NA identification number, marking/label/placard applied, or container shapes identified in the ERG; and using the ERG, SDS, manufacturer/shipper/carrier documents (including shipping papers and emergency response information) and other approved reference sources to identify hazardous materials/WMD and their primary hazards.				
5.2.1(B)	X			X

AMM EXAMPLES DEVELOPMENT

An Explanation of the Process

Example Development

- COA task groups identified preferred methodologies for JPR test items in several standards
  - using the same process as agencies use

- Strengthened by incorporation of data from COA decisions

AMM EXAMPLES APPLICATION

How Your Agency Can Use the AMM Examples

Methodology Selection Process

- **Note: We are using 470 as a prototype for this presentation**
  - **It will be available first / others to follow**

Methodology Selection Tools

- Selecting Assessment Methodologies Guidance Tool
  - Including NFPA Action Verb Pregression Chart
  -
- The AMM Examples

- Both will be found in the Documents section of the web site
  - Theproboard.org → Accredited Agencies → Documents and Videos → Accreditation Forms… Development

Methodology Selection Tools

Selecting Assessment Methodologies Guidance Tool

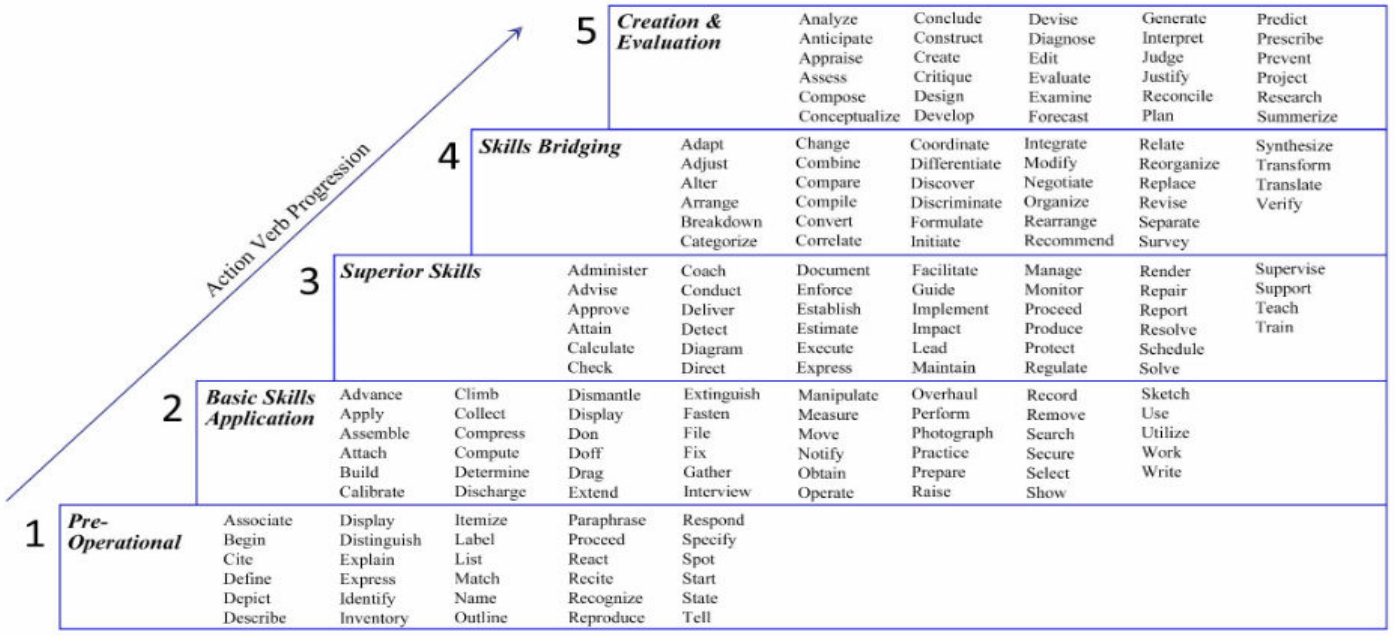
Purpose: to assist an agency in classifying the assessments they are using for certification testing and to ensure inter-agency consistency with terminology. The agency remains in control of the type of assessment they are going to utilize.

Assessment of…	How Assessed ?	How Scored?	Methodology is likely…
Knowledge/Facts *Action verb examples*- identify, define, list, cite, state, choose, name…	A written test in which the candidate is required to provide specific answers to specific questions related to the JPRs. Examples – Multiple choice, Sequencing, True/False, Fill-in-the-Blank, etc.	Responses are scored in relation to the answer that has been determined to be correct.	**Cognitive**
A manipulative skill in real time. *Action verb examples*- climb, build, perform, raise, haul, don…	A skills test to evaluate a candidate's ability to perform physical tasks in real-time. Examples – donning SCBA, raising ladders, tying rescue knots, etc.	The directly observed performance with the correct performance outcome of the skill is normally indicated as part of the yes/no or pass/fail scoring checklist.	**Psychomotor (Skills)**
A cognitive skill which cannot be directly observed. The application of knowledge to yield a product. *Action verb examples*- develop, create, write…	A work product created by the candidate usually outside of the classroom setting. Examples – creating a budget, report, proposal, lesson plan, incident action plan…	Scoring rubric for expected responses evaluating how a candidate completes the task outcome after submission. Used to differentiate consistently between different degrees of candidate performance.	**Product**
A mental activity to perform a cognitive skill in real time which cannot be directly observed. *Action verb examples*- inspect, investigate…	Candidate performs the activity in the presence of the evaluator. The verbalization of mental thought. "first I…, then I…, etc." Examples- performing an inspection, conducting an investigation, etc.	Scoring rubric with questions and expected verbal responses. Used to differentiate consistently between different degrees of candidate performance.	**Process**
Documentation of	A list of acceptable documents or	This portfolio is evaluated using	

AMM Examples

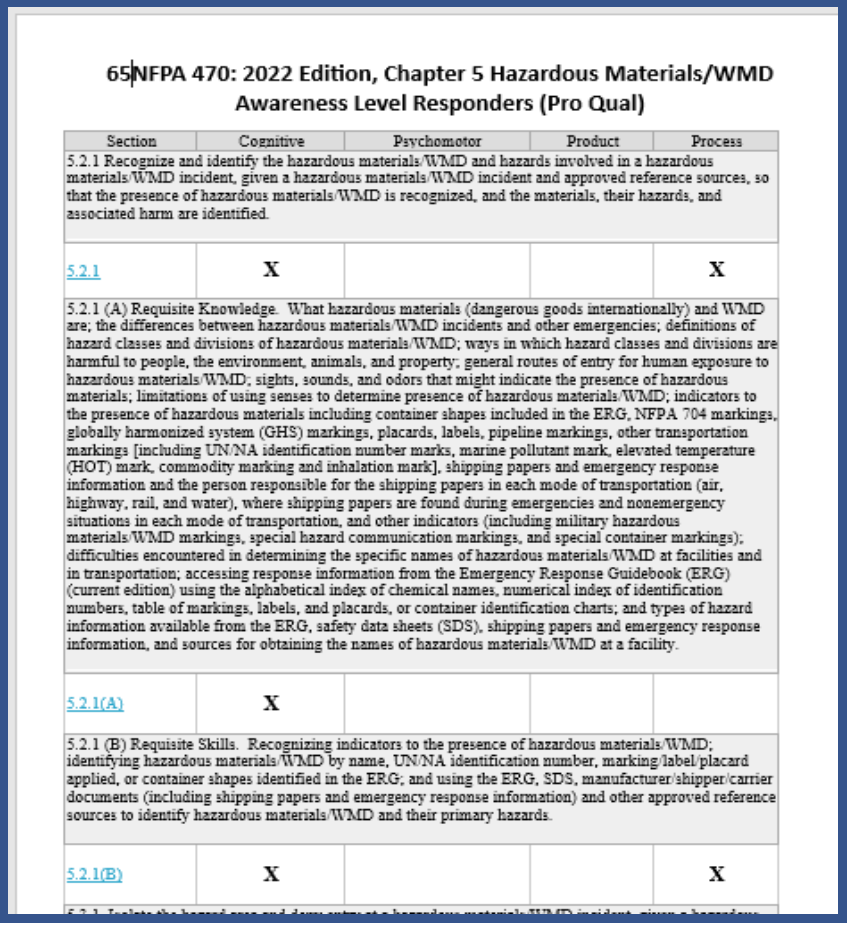
Methodology Selection Tools

Action Verbs – NFPA®



Source: McGowan, T. (n.d.). Awareness: Describing the Concept of JPRs and Revising Text [PowerPoint slides]. Retrieved December 14, 2018, from https://www.nfpa.org/Assets/files/AboutTheCodes/1005/Concepts_JPRs_ReviseText.pdf

Methodology Selection Tools



65NFPA 470: 2022 Edition, Chapter 5 Hazardous Materials/WMD Awareness Level Responders (Pro Qual)

Section	Cognitive	Psychomotor	Product	Process
5.2.1 Recognize and identify the hazardous materials/WMD and hazards involved in a hazardous materials/WMD incident, given a hazardous materials/WMD incident and approved reference sources, so that the presence of hazardous materials/WMD is recognized, and the materials, their hazards, and associated harm are identified.				
5.2.1	X			X
5.2.1 (A) Requisite Knowledge. What hazardous materials (dangerous goods internationally) and WMD are; the differences between hazardous materials/WMD incidents and other emergencies; definitions of hazard classes and divisions of hazardous materials/WMD; ways in which hazard classes and divisions are harmful to people, the environment, animals, and property; general routes of entry for human exposure to hazardous materials/WMD; sights, sounds, and odors that might indicate the presence of hazardous materials; limitations of using senses to determine presence of hazardous materials/WMD; indicators to the presence of hazardous materials including container shapes included in the ERG, NFPA 704 markings, globally harmonized system (GHS) markings, placards, labels, pipeline markings, other transportation markings [including UN/NA identification number marks, marine pollutant mark, elevated temperature (HOT) mark, commodity marking and inhalation mark], shipping papers and emergency response information and the person responsible for the shipping papers in each mode of transportation (air, highway, rail, and water), where shipping papers are found during emergencies and nonemergency situations in each mode of transportation, and other indicators (including military hazardous materials/WMD markings, special hazard communication markings, and special container markings); difficulties encountered in determining the specific names of hazardous materials/WMD at facilities and in transportation; accessing response information from the Emergency Response Guidebook (ERG) (current edition) using the alphabetical index of chemical names, numerical index of identification numbers, table of markings, labels, and placards, or container identification charts; and types of hazard information available from the ERG, safety data sheets (SDS), shipping papers and emergency response information, and sources for obtaining the names of hazardous materials/WMD at a facility.				
5.2.1(A)	X			
5.2.1 (B) Requisite Skills. Recognizing indicators to the presence of hazardous materials/WMD; identifying hazardous materials/WMD by name, UN/NA identification number, marking/label/placard applied, or container shapes identified in the ERG; and using the ERG, SDS, manufacturer/shipper/carrier documents (including shipping papers and emergency response information) and other approved reference sources to identify hazardous materials/WMD and their primary hazards.				
5.2.1(B)	X			X

AMM Examples

Methodology Selection Process

- Evaluate the JPR in context based on verbs and the "so that" clause to determine what needs to be assessed
  - Determine if the JPR is knowledge based (cognitive or project) or performance based (psychomotor or process), or both

Methodology Selection Process

- **Note:**
  - **It is perfectly acceptable to use both knowledge based and performance based assessments for the same JPR**
  - **It is perfectly acceptable to use more than one knowledge based and/or more than one performance based methodology for the same JPR**
  - **Two different performance based methodologies may be used in a single grading tool (skill sheet)**

Methodology Selection Process

- If a Knowledge Based assessment is indicated:
  - Determine the level of knowledge is simple enough that it can be assessed with multiple choice machine scored test items (questions)
  - If not, how should it be tested?
    - Project / Product encompasses many types of test items

Methodology Selection Process

- If a Performance Based assessment is indicated:
  - Determine if the task to be assessed is primarily a physical task or primarily a mental task
  - Ensure that the performance test assessment tool (skill sheet) can be used to assesses the primary task performance to the level described in the ‘so that’ clause of the JPR.

Considerations

- **Review ALL the verbs:**
  - **In the critical component**
    - **Action verb**
    - **Verbs in "so that"**
  - **Implied verbs in the requisite knowledge and skills**

Considerations

Review everything after **"so that" in the critical component.**

These are the evaluation parameters **and** expected outcomes**.**

Considerations

Review ALL the requisite knowledge and requisite skills.

Considerations

Compare your selected methodologies to the AMM Examples.

What if they don't match?

If your selections do not match those on the AMM Examples, your agency must be prepared to justify or explain why a different methodology is more appropriate.

The Examples

The Kevin Show

Questions

Anticipated Questions

Questions

- Will the AMM Examples change?
- How do we ask for a change?
- Will these replace the Excel spreadsheets?

Questions

- **Your input:**
  - **Will these be helpful?**
  - **Would you suggest any changes?**
  - **Anything else?**

Thank You.