



AEROTEAM
Training Solutions



wats2024
ORLANDO

AEROTEAM Training Solutions®

Introducing Scenario-Based Training into the
Maintenance Environment

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Technical Training: Not Just a Tick Mark

**Competency-Based
Training?**

**Learning
Effect?**

**Simple Simulations of
Complex Situations?**

**Assessment of
Non-Technical Skills?**



Agenda: A Short Introduction

- 1) What Is Active Learning?
- 2) Introducing Scenario-Based Training
- 3) Assessment
- 4) Benefits
- 5) A Way Forward?



“ —

Tell me and I forget. Teach
me and I may remember.
Involve me and I learn.

– Benjamin Franklin

Strategies to Manage Human Error

- Understanding the nature and extent of error or risk
- Changing the conditions that induce error
- Determining the behaviours that prevent or mitigate errors



What Are Human Factors Really?



Reality: What is
really happening

Perception of reality: What I
think is really happening

We make decisions based on our
PERCEPTION of reality...

SITUATIONAL AWARENESS

UNDERSTANDING

STARTLE EFFECT

RESILIENCE

VIGILANCE

FATIGUE

WORKLOAD

PRESSURE

STRESS

ASSERTIVENESS

LEADERSHIP

PROCEDURES

JUDGEMENT

“ —
Education is NOT the
learning of facts. It is the
training of the mind to THINK!

– Albert Einstein

Active Learning






... Is interactive learning of SKILLS



- ✈️ “Learning by doing” in a simulated reality
- ✈️ It is **SAFE** and there is **no inherent risk**
- ✈️ Individual learning of skills... in a dynamic, social environment
- ✈️ Observation of **behaviours**
- ✈️ Easy assessment of **non-technical skills**

Competency-Based Training & Assessment

Scenarios used for training and assessments must be:

-  **Realistic** - A simulation of reality
-  **Simple** - Simple presentations of complex problems
-  **Precise** - Clear and precise learning objectives
-  **Well-designed** - Focus on the learning, not technology
-  **Measurable** - In terms of learning effect (in essence: Assessment)



Analogue or Digital?

Training tools come in an array of shapes and sizes!

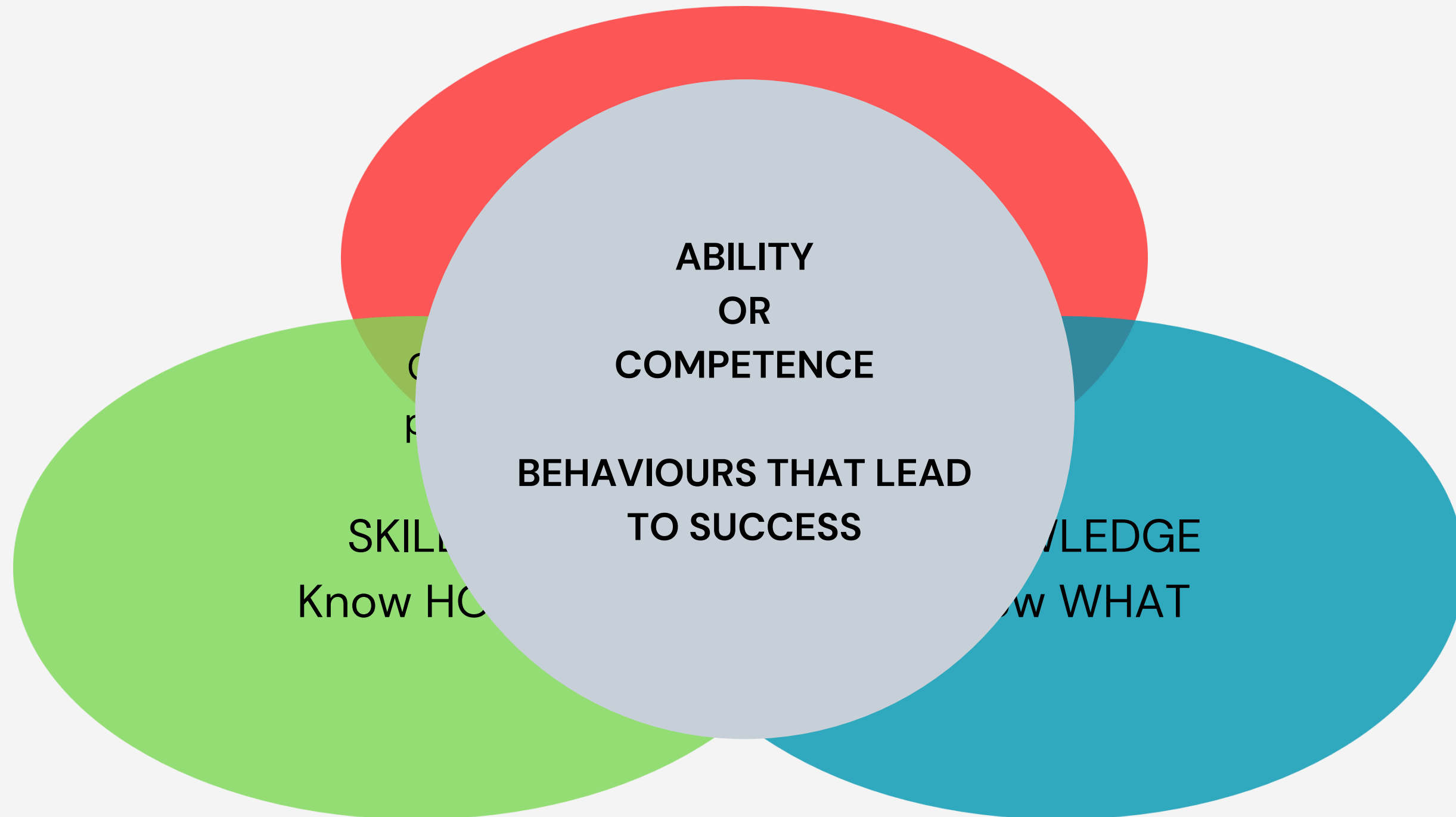
Which type matches the needs of your organisation?

Bonus: You are able to assess non-technical skills more efficiently!



Ability or Competence?

A Synergy Between Your Attitude, Knowledge & Skills



Examples of Non-Technical Skills

TEAMWORK

COMMUNICATION

SITUATIONAL AWARENESS

LEADERSHIP &
MANAGERIAL SKILLS

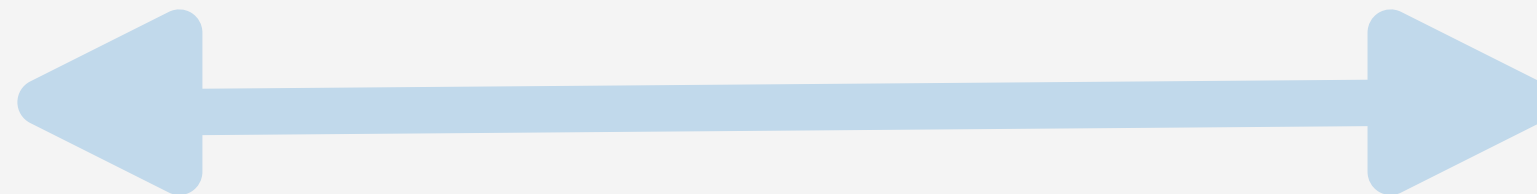
WORKLOAD
MANAGEMENT

DECISION-MAKING SKILLS

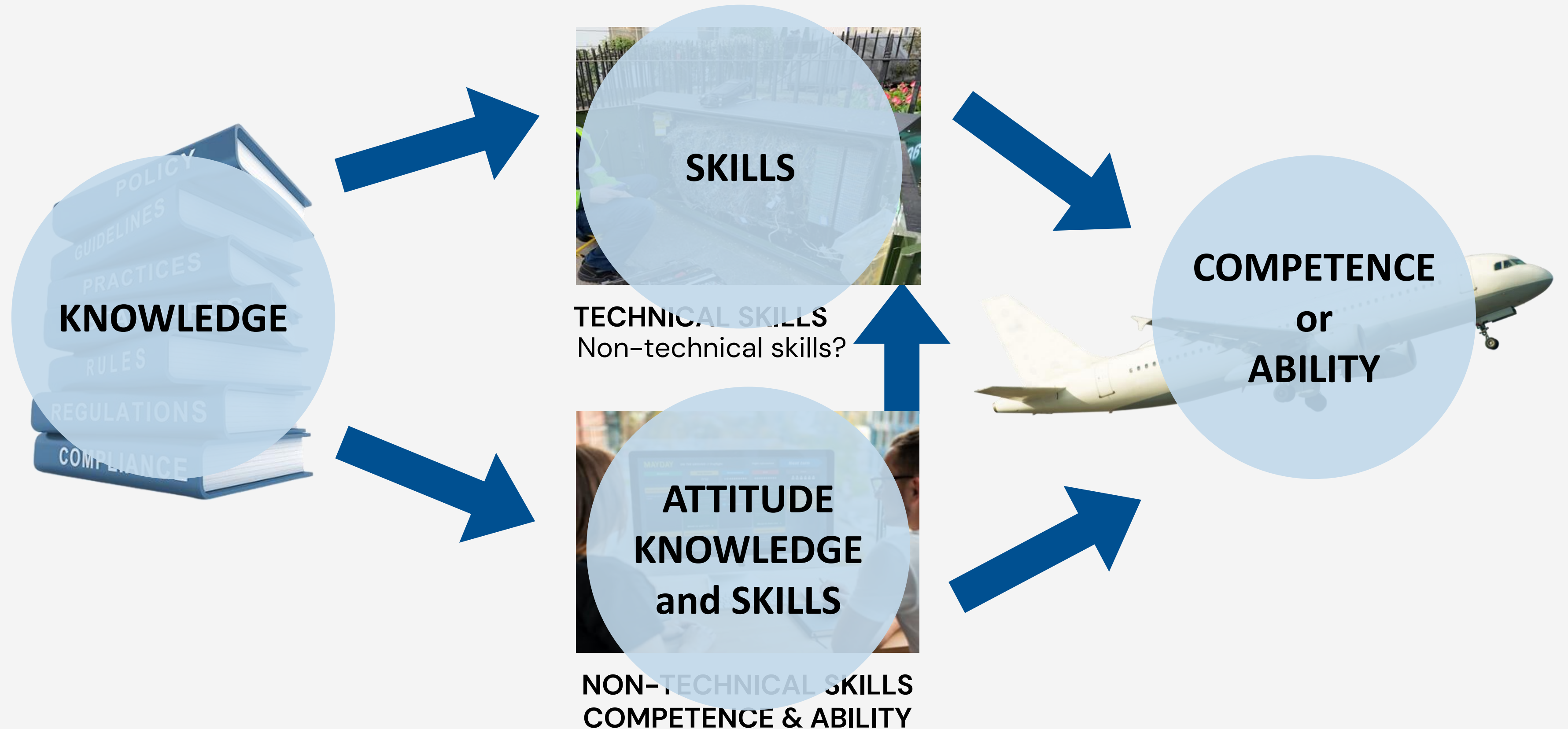
SOCIAL SKILLS

THREAT & ERROR
MANAGEMENT

COGNITIVE SKILLS



How Do We Train?



Facilitation: How Does It Work?



- ✈ Realistic training scenarios
- ✈ Dilemmas to create discussions
- ✈ Give a few solutions - all of which are plausible for discussions
- ✈ Highlight possible consequences
- ✈ Define focus areas

Do You Know Bo or Charlotte?

Selecting Your Staff...



**CERTIFYING
STAFF**

BO, 47

Bo has spent many years working for different companies on line stations at airports abroad. His basic work philosophy is: "If it flew in, it can fly out". He is always the one handing over jobs to the new shift.



**CERTIFYING
STAFF**

CHARLOTTE, 38

Charlotte has been with the company since she was an apprentice. She is loyal and ambitious and rarely makes any mistakes. She recently divorced and is now a single mom.

Dilemmas

TASKS

5

THE PASSENGER SEAT

You are asked to contact a captain who has reported a problem with a cabin seat reclining mechanism. A repair normally takes 25 minutes. The aircraft has been boarded at full capacity. No spare aircraft are available.

This is only a job for certifying staff

Option A

You replace the actuator straight away while the passengers wait in the aisle.

Option B

You ask the captain to send the passengers back to the terminal while you perform the repair job.


Option C

You inform the captain that you will defer the defect in accordance with the Minimum Equipment List.





Consequences



THE PASSENGER SEAT

If the employee is Experienced: 



A
Passengers may distract you and create pressure, so you may feel compelled to select a "quick fix".

STRESS
If the employee has LACK OF AWARENESS, DISTRACTION, COMPLACENCY, LACK OF TEAMWORK, LACK OF COMMUNICATION or LACK OF ASSERTIVENESS:  

B
This puts a lot of operational pressure on both aircraft and ground crew.

PRESSURE
If the employee has LACK OF TEAMWORK, LACK OF COMMUNICATION or LACK OF ASSERTIVENESS:  

C
Some passengers must be off-loaded.

PRESSURE
If the employee has LACK OF TEAMWORK, LACK OF COMMUNICATION or LACK OF ASSERTIVENESS:  

5



Best Practice!

Discuss which of these management tools will help create a more robust SAFETY CULTURE.

Choose the 2 you think will help the most in your organisation.

How could they be implemented into your organisation?



SAFETY SURVEY



TECHNICAL TRAINING



TOOLBOX MEETINGS



MINIMUM STOCK LIST

Assessments



"Your evaluation is based on the next 30 seconds. Go!"

Formative & Summative Assessments



FORMATIVE ASSESSMENT

- **Helps students** identify their strengths and weaknesses - and targets areas that require work.
- **Helps faculty (instructors)** recognise where students are struggling, addresses problems immediately, and improves the training.

SUMMATIVE ASSESSMENT

- **Evaluates student learning** at the end of an instructional unit by comparing to defined standards or benchmarking.

Competency Assessment Matrix

CBTA Assessment Matrix														
Formative assessment			COMPETENCY MAP											
MAYDAY Training Tool				1	2	3	4	5	6	7	8	9	10	11
TASK	Description	Desired outcome		Application of Procedures	Work Management	Situational Awareness	Technical Expertise	System Thinking	Coordination and Handover	Risk Management	Teamwork	Problem-Solving and Decision-Making	Self-Management and continuous Learning	Communication
	[Description of the task or MM reference]	[what do you expect to see] [What behavioural markers is expected] [Questions and answers to specific subjects]	[O]	[X]	[X]		[X]							
Example	Job interruption	Complete appropriate documentation	[W]	X					X					X

Performance Indicators (1)

COMPETENCY	SITUATIONAL AWARENESS	
LEARNING OBJECTIVE	Recognises and understands the maintenance environment and relevant information; anticipates future events	
Performance Indicators – PI	Maintains awareness of the maintenance environment	✓
PI	Did not recognize hazardous situations	✗
PI	Recognises future operational situations	✓
PI	Verifies that information is accurate, and assumptions are correct	✓
PI	Is cognisant of ongoing concurrent activities	✓
PI	Did not report deviations	✗

Performance Indicators (2)

COMPETENCY	TEAMWORK	
LEARNING OBJECTIVE	Operates safely and efficient as a team member	
Performance Indicators – PI	Encourages team participation and cooperation	✓
PI	Creates an atmosphere of open communication	✓
PI	Encourages team participation and cooperation	✓
PI	Does not give feedback	✗
PI	Does not accept feedback constructively	✗
PI	Shows respect for other people	✓
PI	Demonstrates integrity and honesty	✓

Assessment: General Rating Scale

LEVEL 1 UNSATISFACTORY	LEVEL 2 SATISFACTORY	LEVEL 3 GOOD	LEVEL 4 VERY GOOD	LEVEL 5 EXCELLENT
The student's performance was ineffective or inadequate, and had a neutral or negative effect on others or on the outcome of the exercise	The student's performance was satisfactory, which had a slightly positive effect on others or on the outcome of the exercise	The student's performance was effective and had a good effect on others and significantly contributed to the overall outcome of the exercise	The student's performance was very effective and had a very good effect on others and significantly enhanced the overall outcome of the exercise	The student's performance was exemplary and had an excellent effect on others and an outstanding effect on overall outcome of the exercise
Showed none or few relevant Performance Indicators (PI)	Showed some* of the relevant Performance Indicators (PI) * min 35%	Showed most of the relevant Performance Indicators (PI) to a good standard	Showed most or <u>all of</u> the relevant Performance Indicators (PI) to a very good standard	Showed <u>all of</u> the relevant Performance Indicators (PI) to an excellent standard

Observations

Decorative geometric shapes in the bottom-left corner: a large dark blue hexagon, a medium light blue hexagon, and a small dark grey hexagon.

- Staff behaviour
- Listening skills
- Non-verbal communication
- Do they disagree?
- How do they solve the issue? And reach a solution?
- Is there a 'leader'? Is someone very dominant or controlling?
- Is someone very passive?
- How do they give and receive feedback?
- Do they follow procedures?
- Can they foresee the consequences?
- Does everyone provide inputs?

Assessment in Practice

- Behaviours are observable, NOT the actual skills!
- Instructor knowledge of the NOTECHs Observable Behavioural Markers is essential!
- Definition of effective Human Factors behaviours must be visible to the crew as it helps staff compare their own performance to the defined standards.

You **MUST** be **OBJECTIVE** in your assessment!



Objective vs. Subjective










OBJECTIVE	SUBJECTIVE
OBJECTIVE information is FACTUAL information based on OBSERVATIONS and MEASUREMENTS	SUBJECTIVE information is anything that is based on PERSONAL OPINIONS, JUDGMENT, FEELINGS, or POINTS of VIEW
VERIFIED with EVIDENCE	CANNOT be PROVED by EVIDENCE
UN-BIASED	BIASED
DOES NOT CHANGE	CHANGES depending on different PEOPLE

Limitations of Assessment

- Not every aspect of performance and behaviour can be captured.
- We cannot assess everything all the time.
- Some behaviours will appear in limited form, e.g., conflict resolution.
- The instructor as an observer has limitations:
 - Distractions
 - Overload
 - Large groups
 - Lack of knowledge of NOTECHs and Performance Indicators
 - Own perception of performance level
 - Assessor standardisation



What is the benefit?

-  HIGH LEARNING EFFECT
-  KNOWLEDGE SHARING ACROSS COMPANY
-  EASY FACILITATION
-  EASY ASSESSMENT of SKILLS
-  DEFINITION of PROBLEM AREAS
-  INPUT for EBT, CBTA, SMS, and KSA
-  COST EFFECTIVE











“ACTIVE LEARNING”

MAYDAY®



Who Was This Guy?

Søren Seindal Agner, CEO of AEROTEAM Training Solutions®

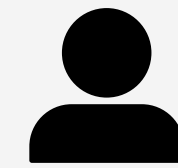
-  Tour guide, cabin crew, operations
-  Pilot: Danish Air Transport (Short 7) and Scandinavian Airlines (MD-80)
-  Ground instructor (ATPL)
-  CRM and Human Factors trainer & examiner
-  Multi Crew Course instructor (MCCI)
-  Training Manager EASA Part-147
-  Member of the Danish Flight Safety Council (2010 – now)
Human Factors in Civil Aviation
-  Inventor of the MAYDAY Active Learning Tools for civil and military aviation

Please Remember...



Thank you for your attention!

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