

LEARNING EFFECT?

COMPETENCE BASED
TRAINING?

TECHNICAL TRAINING

– *“Not just a Tick Mark”*

- Scenario-Based Training into the Maintenance Environment

BY

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SIMULATIONS?

ASSESSMENT OF SKILLS

Agenda: A Short Introduction

Active Learning

Scenario-Based Training

Benefits

Way Forward



*“Tell me and I forget,
teach me and I may
remember,
involve me and I learn”*

- Benjamin Franklin

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



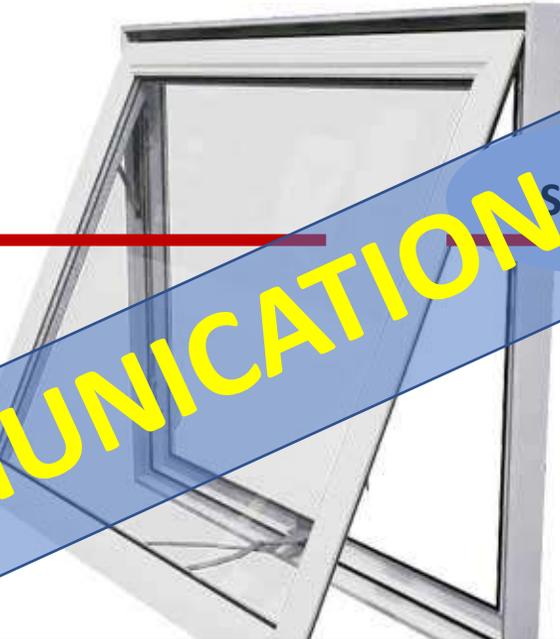
What is really happening

What are Human Factors Really?

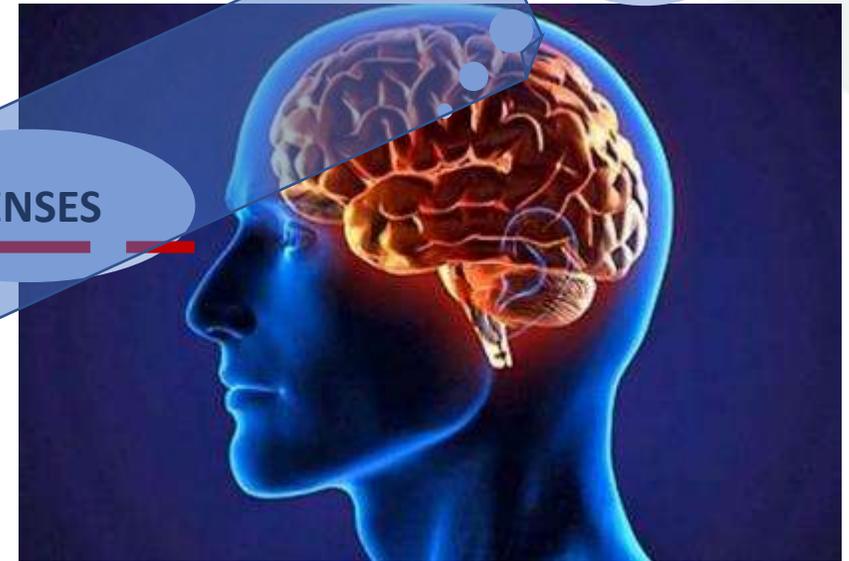
What I think is really happening



REALITY



SITUATIONAL AWARENESS



PERCEPTION OF REALITY

COMMUNICATION

SENSES

INFORMATION PROCESSING

UNDERSTANDING

STARTLE EFFECT

RESILIENCE

STRESS

ASSERTIVENESS

TEAMWORK

We make decisions based on our PERCEPTION of Reality

*“Education is NOT the learning of facts,
It is the training of the mind to THINK!”*

Albert Einstein

INTERACTIVE LEARNING of SKILLS

- ✈ Learning by Doing in a Simulated Reality
- ✈ It is **SAFE** and there is **No Inherent Risks**
- ✈ Individual learning of Skills
 - in a dynamic social environment
- ✈ Observation of Behaviours
- ✈ Easy Assessment of Non-Technical Skills



COMPETENCY-BASED TRAINING and ASSESSMENT



✈️ Scenarios for Training and Assessments must be:

Realistic – a simulation of reality

Simple – simple presentation of complex problems

Precise – clear and precise learning objective

Well-designed – focus on the *learning*, not technology

Measurable for the learning effect – i.e., Assessments



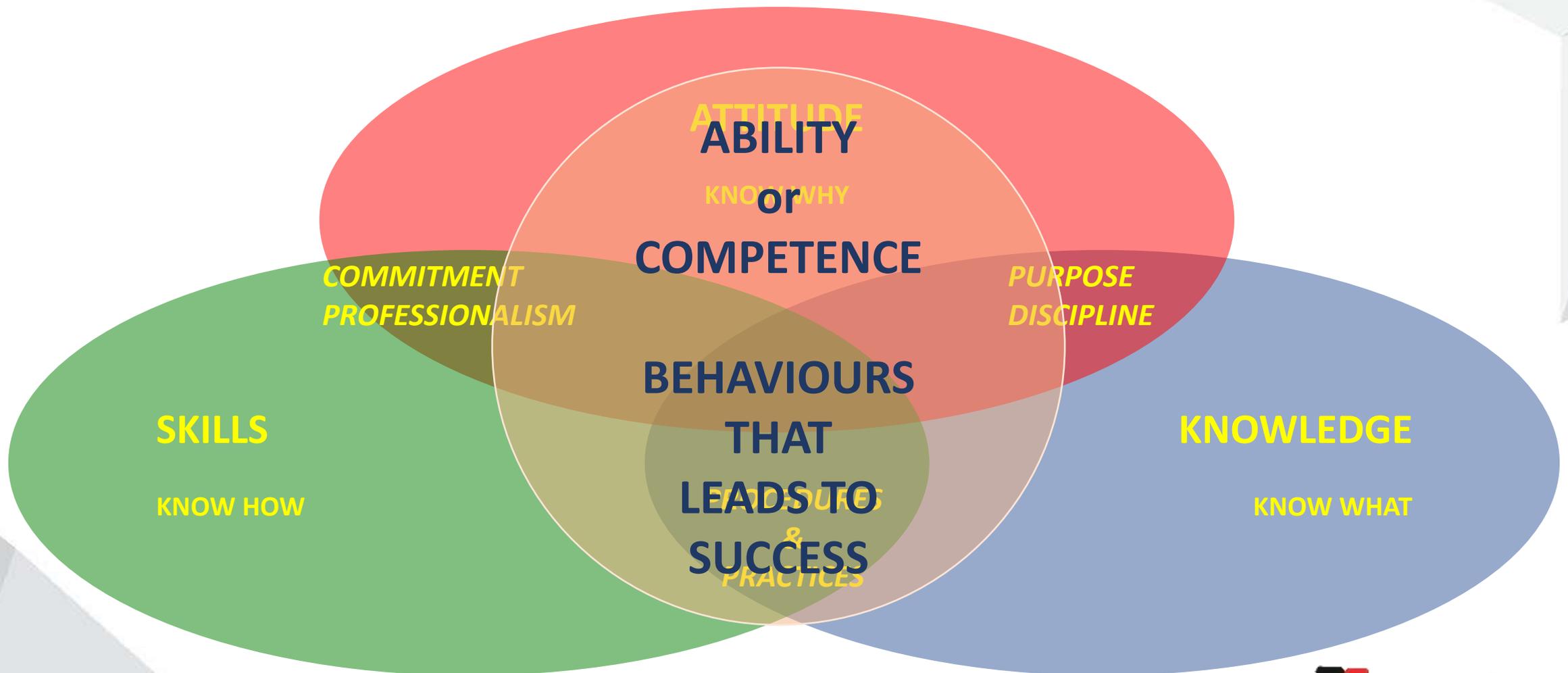
ANALOQUE or DIGITAL?



BONUS: Assessment of Non-technical Skills

ABILITY or COMPETENCE

SYNERGY OF YOUR ATTITUDE, KNOWLEDGE AND SKILLS



Non-Technical Skills Categories

TEAMWORK

LEADERSHIP & MANAGERIAL SKILLS

SOCIAL SKILLS



COMMUNICATION

WORKLOAD
MANAGEMENT

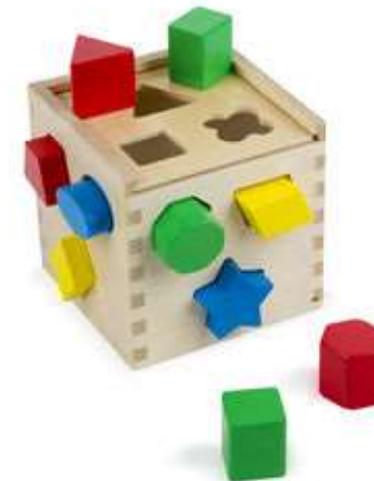
THREAT & ERROR
MANAGEMENT



SITUATIONAL AWARENESS

DECISION MAKING SKILLS

COGNITIVE SKILLS



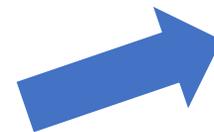
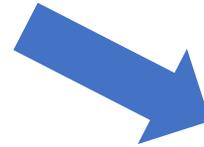
TRAINING



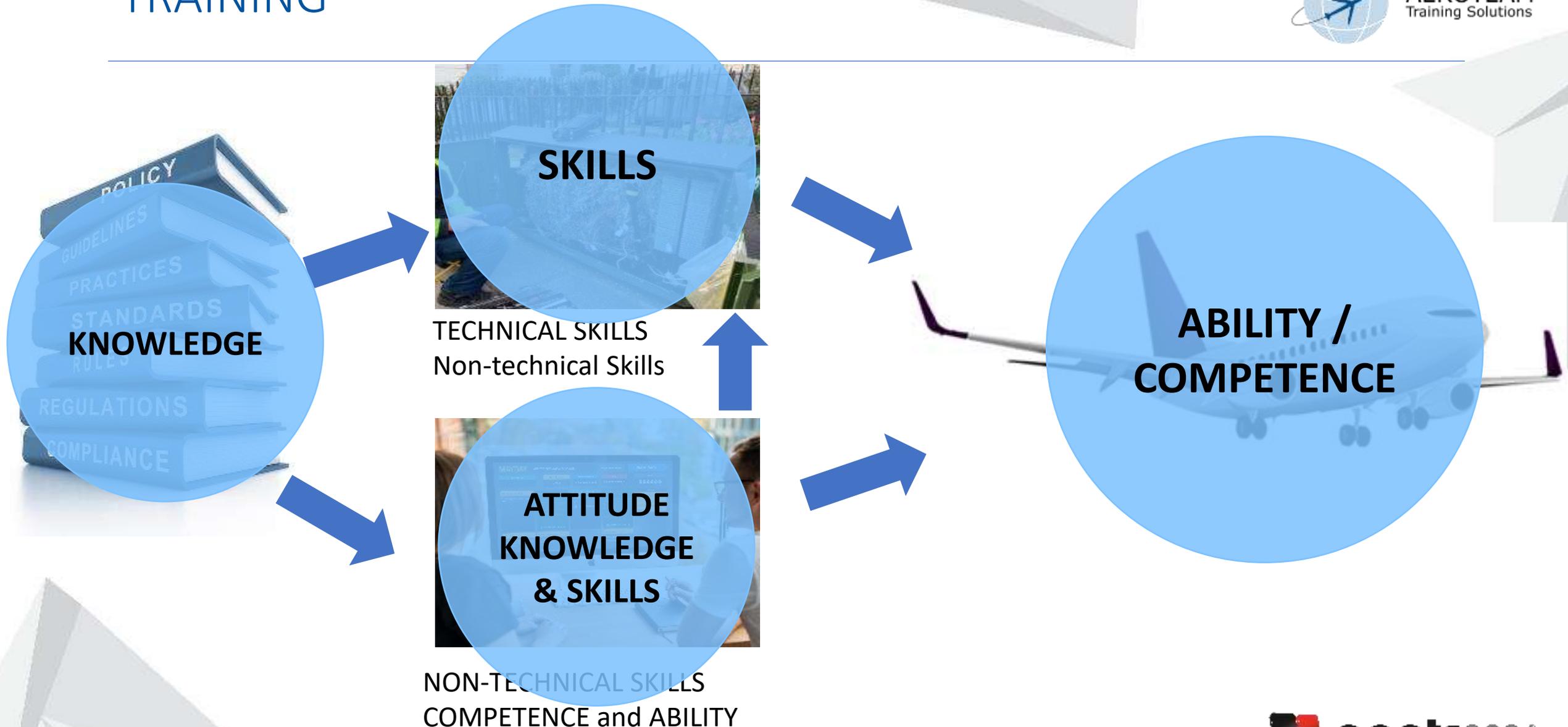
TECHNICAL SKILLS
Non-technical Skills



NON-TECHNICAL SKILLS
COMPETENCE and ABILITY



TRAINING



FACILITATION – HOW DOES IT WORK?



- Realistic Training Scenarios →
- Dilemmas to Create Discussions
- Give a few solutions – All plausible for discussions
- Highlight Possible Consequences
- Define Focus Areas

STAFF SELECTION



**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.

DILEMMA

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 PRACTICES – Input from training sessions



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

Pick the 2 you think will help the most in your organisation!

How could they be implemented in your organisation?

SAFETY SURVEY

TOOLBOX MEETINGS

TECHNICAL TRAINING

MINIMUM STOCK LIST

ASSESSMENTS



FORMATIVE ASSESSMENT

- ***Help students*** identify their strengths and weaknesses and target areas that need work
- ***Help faculty (Instructors)*** recognize where students are struggling and address problems immediately and improve the training

SUMMATIVE ASSESSMENT

- ***Evaluate student learning*** at the end of an instructional unit by comparing against some standards or benchmark.

Competency Assessment Matrix

| CBTA Assessment Matrix | | | | | | | | | | | | | | |
|------------------------|---|---|--|---------------------------|-----------------|-----------------------|---------------------|-----------------|---------------------------|-----------------|----------|-------------------------------------|---|---------------|
| Formative assessment | | | COMPETENCY MAP | | | | | | | | | | | |
| MAYDAY Training Tool | | | Competency to be assessed in the specific task | | | | | | | | | | | |
| TASK | Description | Desired outcome | Oral / Written | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | | | | 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



| COMPETENCY | TEAMWORK | |
|--------------------------|--|---|
| PERFORMANCE INDICATOR(S) | LEARNING OBJECTIVE – Operates safely and efficiently as a team member | |
| TEAMWORK # 8.1 | Fosters an atmosphere of open communication | ✓ |
| TEAMWORK # 8.2 | Encourages team participation and cooperation | ✓ |
| TEAMWORK # 8.3 | Uses feedback to improve overall team performance | ✗ |
| TEAMWORK # 8.4 | Provide feedback constructively | ✗ |
| TEAMWORK # 8.5 | Shows respect and tolerance to other people | ✓ |
| TEAMWORK # 8.9 | Accepts feedback constructively | ✗ |
| TEAMWORK # 8.13 | Demonstrates integrity and honesty | ✓ |

PERFORMANCE INDICATORS



| COMPETENCY | SITUATIONAL AWARENESS (SA) | |
|-----------------------------|--|---|
| PERFORMANCE INDICATOR(S) | LEARNING OBJECTIVE – Recognises and understands the maintenance environment and relevant information; anticipates future events | |
| Situational Awareness # 3.1 | Maintains awareness of the maintenance environment | ✓ |
| Situational Awareness # 3.1 | Did not recognize hazardous situations | ✗ |
| Situational Awareness # 3.3 | Recognises future operational situations | ✓ |
| Situational Awareness # 3.4 | Verifies that information is accurate, and assumptions are correct | ✓ |
| Situational Awareness # 3.5 | Is cognisant of ongoing concurrent activities | ✓ |
| Situational Awareness # 3.6 | Assesses situations and reports deviations | ✗ |

ASSESSMENT – General Rating Scale

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

OBSERVATIONS

- Staff behaviour
- Listening skills
- Do they disagree?
- How do they solve that?
- Is there a “leader”?
- Is someone very passive?
- How do they receive feedback?
- How do they give feedback?
- Do they follow Procedures?
- Non-verbal Communication
- Can they foresee the consequences?
- Does everyone give inputs?
- How do they reach a solution?
- Is someone dominant / controlling?



ASSESSMENTS in Practice

- It is behaviours that are observable and not the actual skills!
- Instructor knowledge of the NOTECHs Observable Behavioural markers is essential!
- Definition of effective Human factor behaviour is visible to the crew
 - Helps staff to compare own performance
- You ***MUST*** be ***OBJECTIVE*** in your assessment



OBJECTIVE versus 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 |

LIMITATION of Assessment

- Not every aspect of performance and behaviour can be captured:
- Not possible to Assess everything all the time
- Limited occurrence of some behaviours
 - i.e., Conflict resolution
- Limitation of human observers
 - Distractions
 - Overload
 - Large groups
 - Lack of knowledge of NOTECHS and Performance Indicators
 - Own perception of Level of Performance
 - Assessor Standardization



“ACTIVE LEARNING”



WHO WAS THIS GUY?

Søren Seindal Agner, CEO – AEROTEAM Training Solutions®

- ✈️ Tour Guide, Cabin Crew, Operations
- ✈️ Pilot
 - ✈️ Danish Air Transport (Short 7)
 - ✈️ 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 since 2010
 - ✈️ Position – Human Factors in Civil Aviation
- ✈️ INVENTOR of the MAYDAY Training Concept



PLEASE REMEMBER

ESSENTIALS OF RISK MANAGEMENT:

1. DON'T DO ANYTHING WRONG TODAY.
2. DON'T DO ANYTHING WRONG TOMORROW.
3. REPEAT.



Complex Discovery
GLASBERGEN

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THANK YOU FOR YOUR ATTENTION