Technology Work Session for the South African Army; Hosted by the CSIR

Session 6: Mobility

Trends in Military Training

Gavan Lintern
Cognitive Systems Design

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CSIR
our future through science

Trends in Military Training

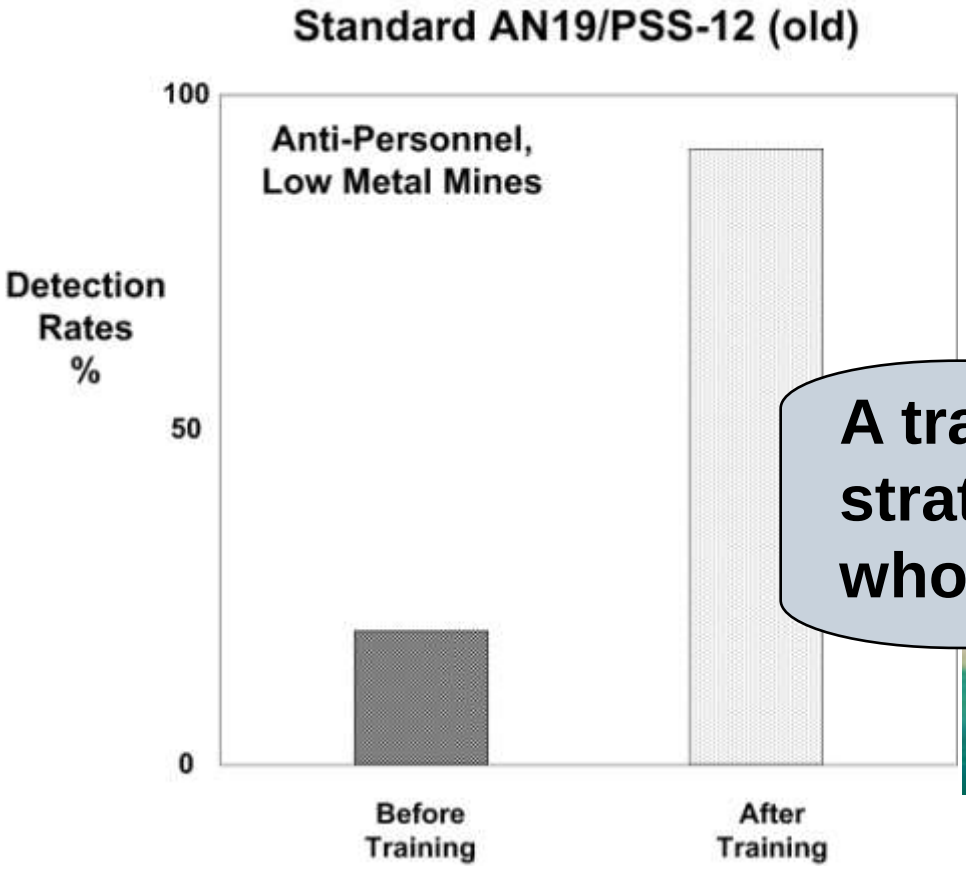
Cognitive Training

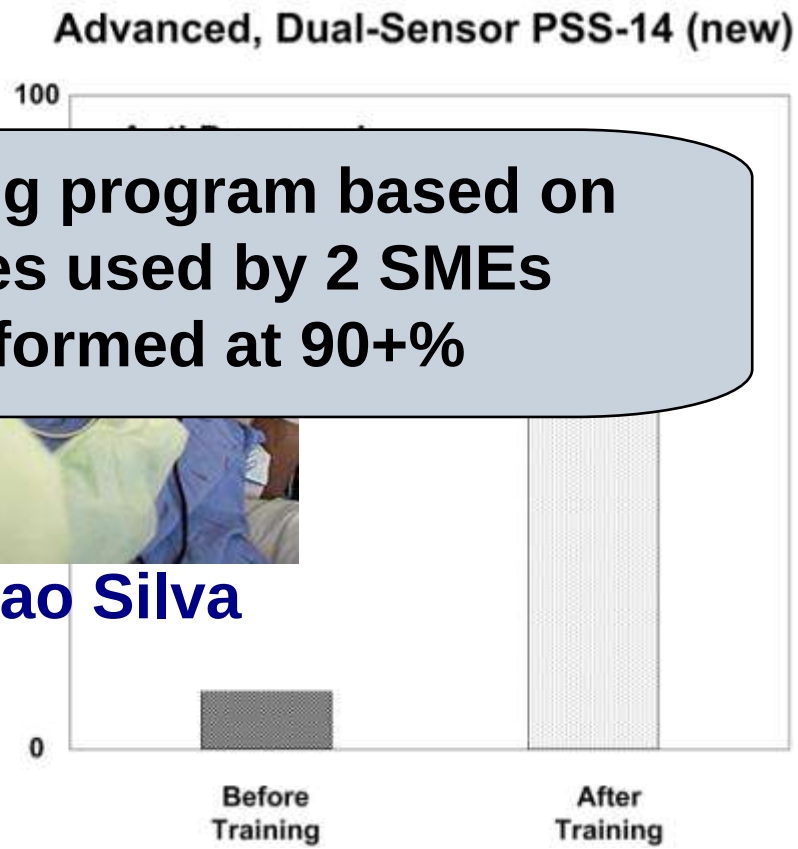
- Land Mine Detection
- Training Needs Analysis
- Instructional Strategies

Cultural Change

Force Preparedness

Detection Rates:
Anti-Personnel Low-Metal Mines





A training program based on strategies used by 2 SMEs who performed at 90+%

Joao Silva

A more advanced device

Training Needs Analysis

Instructional System Development

- A failed program, at the wrong level of detail
- Describes observable behaviors with only superficial reference to cognition

Find the challenges

Identify the content

- Identify invariant patterns, by interview, observation or analysis

Cognitive Skill: How might we enhance it?

Demonstration, drill & practice

- Problem; how do you demonstrate a cognitive skill?

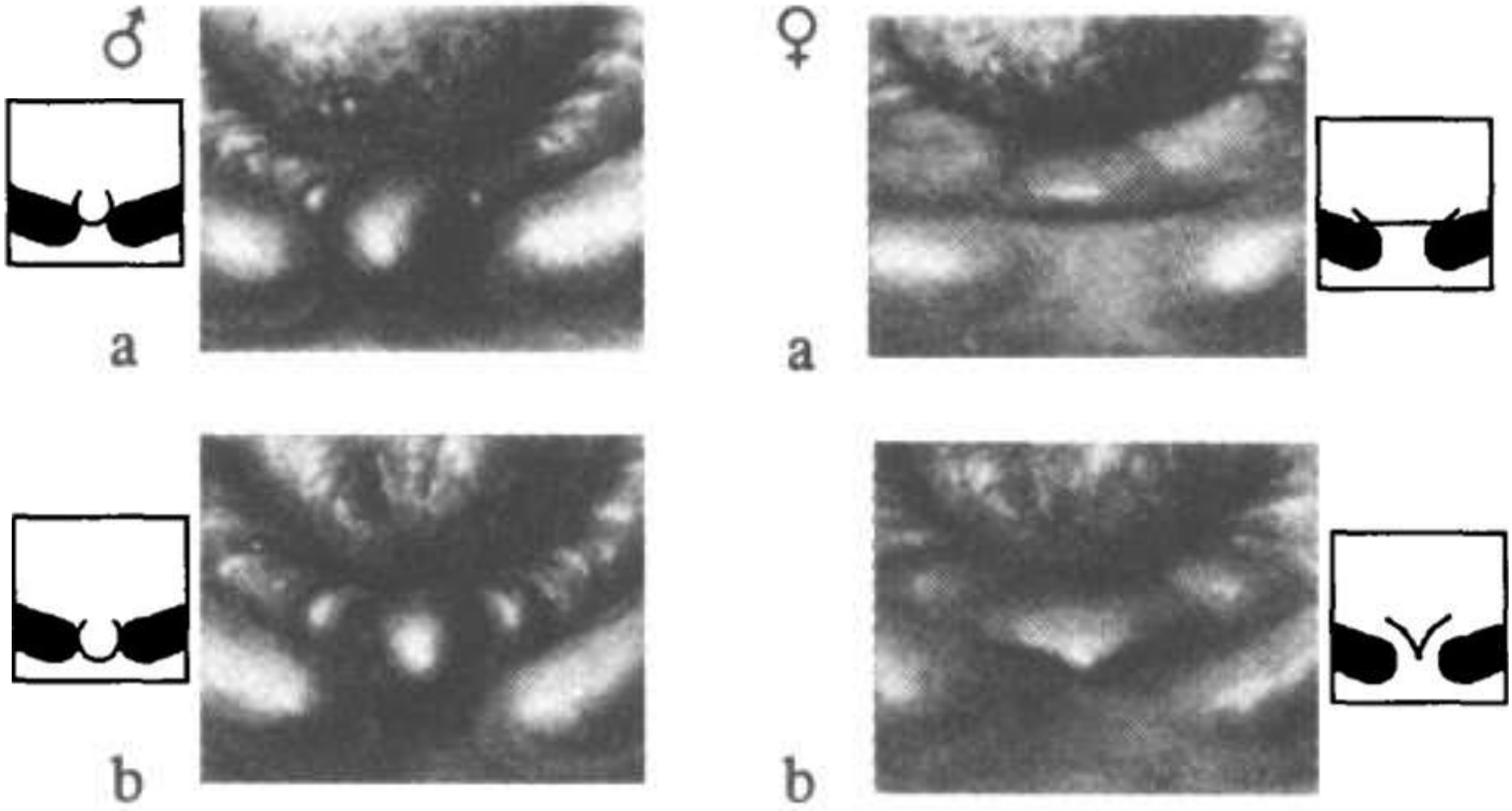
Experience leads to expertise if there is:

- Clear, meaningful information
- Regular, consistent experience & reliable feedback

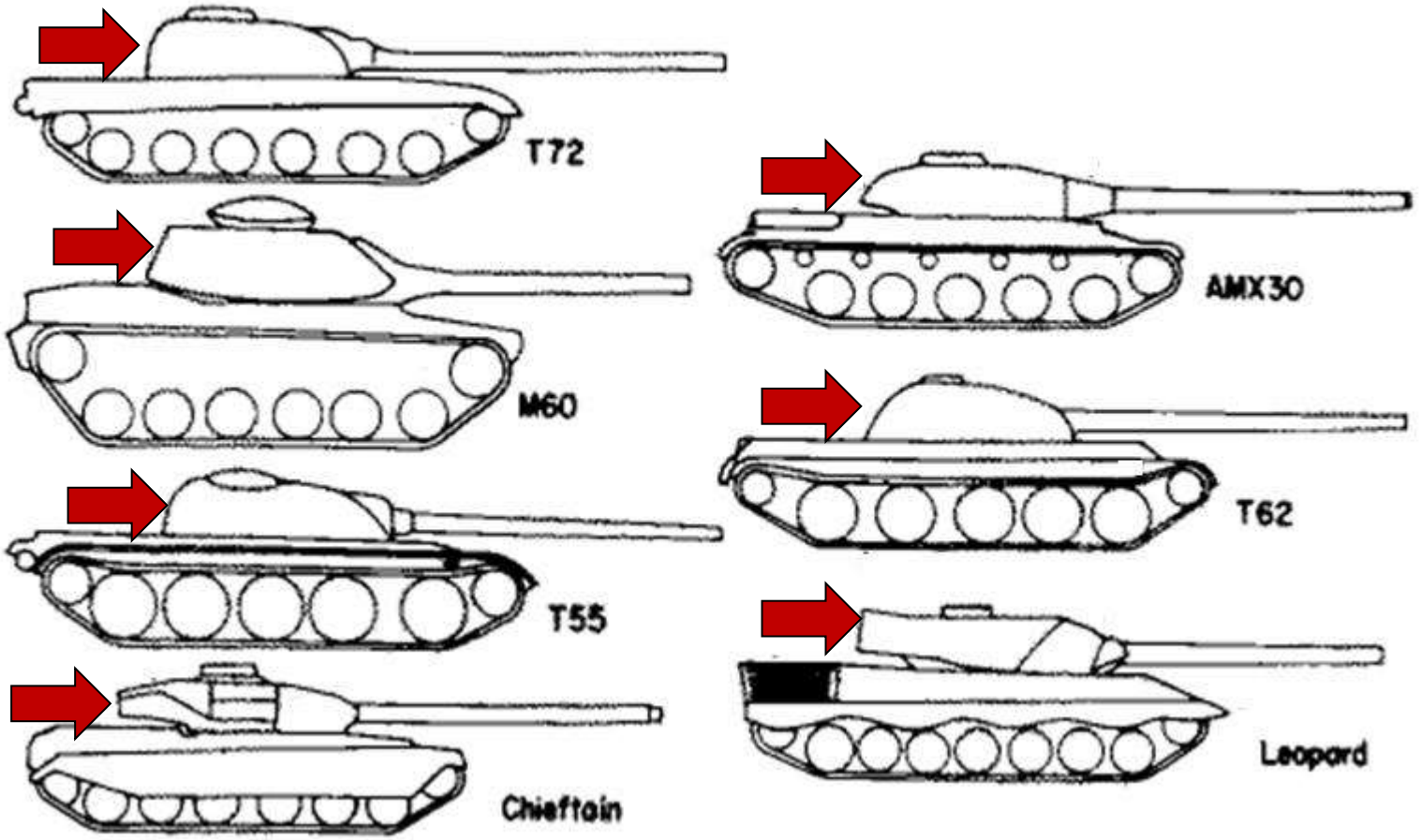
Differentiation

- Obscure information, poor feedback (chicken sexing)

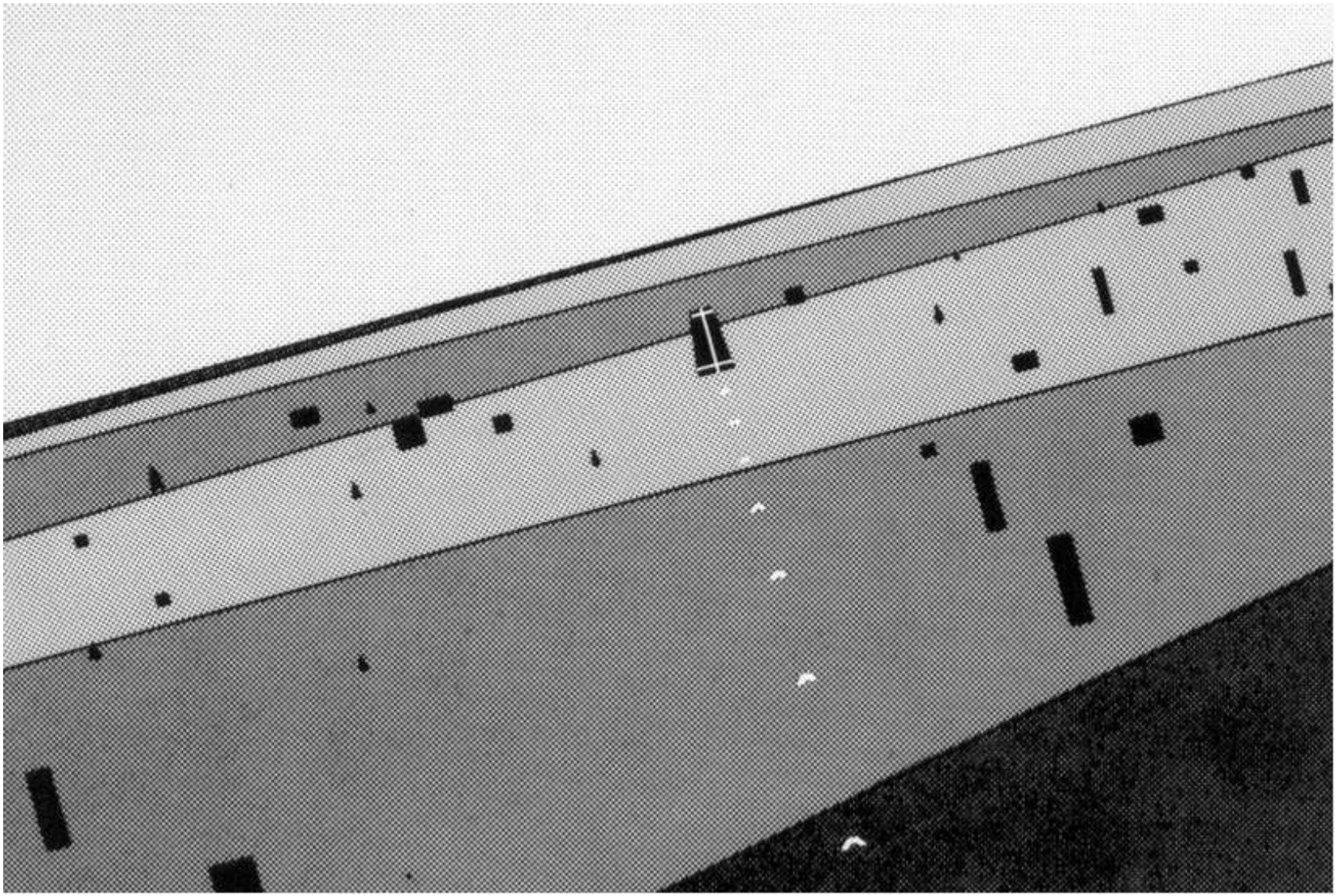
Cognitive Skill: How does it develop?



Cognitive Training: Distinctive Features



Cognitive Training: Directing Attention



Cognitive Skill: How does it develop?

Demonstration, drill & practice

- Problem; how do you demonstrate a cognitive skill?

Experience leads to expertise only with

- Clear, meaningful information
- Regular, consistent experience & reliable feedback

Differentiation & Abstraction

- Differentiate distinctive features (contrast, highlight, point to)
- Isolate the common structure (abstract, summarize)

Beyond Perceiving

A plan is a cognitive product

Stability of the situation & resource limitations play a major role in determining the type of plan

- Differentiation: How should a plan for an offensive mission differ from one for a defensive mission?
- Abstraction: What is the structure (pattern) of a good plan given the existing constraints ?

Trends in Military Training: Cognitive Training Summary

Training Needs Analysis

- Identify the challenges
- Identify the invariant patterns

Instructional Methods

- Differentiate: contrast, highlight or point to distinctive features
- Abstract: describing the common structure or remove contextual details to isolate it

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Cultural Change

Force Preparedness

Thank You

Gavan Lintern
glintern@CognitiveSystemsDesign.net

Cultural Change: Knowledge Management

US 5th Fleet

- **Knowledge sharing tools**

Quasi-expert synthesis of information

Information current & widely available

Lower information sharing barriers

More focus on contingency planning

Supportive, intelligent command support

Force Preparedness: Problem-Based Learning

Alien Rescue

Force Preparedness: Practice-Based Learning

Trends in Military Training

Cognitive Training

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- Instructional Strategies

Cultural Change

- The US 5th Fleet; Knowledge Management

Force Preparedness

- Problem-Based Learning; Alien Rescue
- Practice-Based Learning; Carrier Flight-Deck Crew

Thank You

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