

# Human Resources

## Addressing Shortages of Expertise Ashore and Afloat

Nor-Shipping Conference June 2007, Oslo

# Introduction

- Warsash Maritime Academy
  - Training centre for 60 years
- Pioneering use of simulation
  - Navigation, Engineering, Cargo
- Extensive training facilities
  - Fire fighting, ship handling, workshop skills, survival



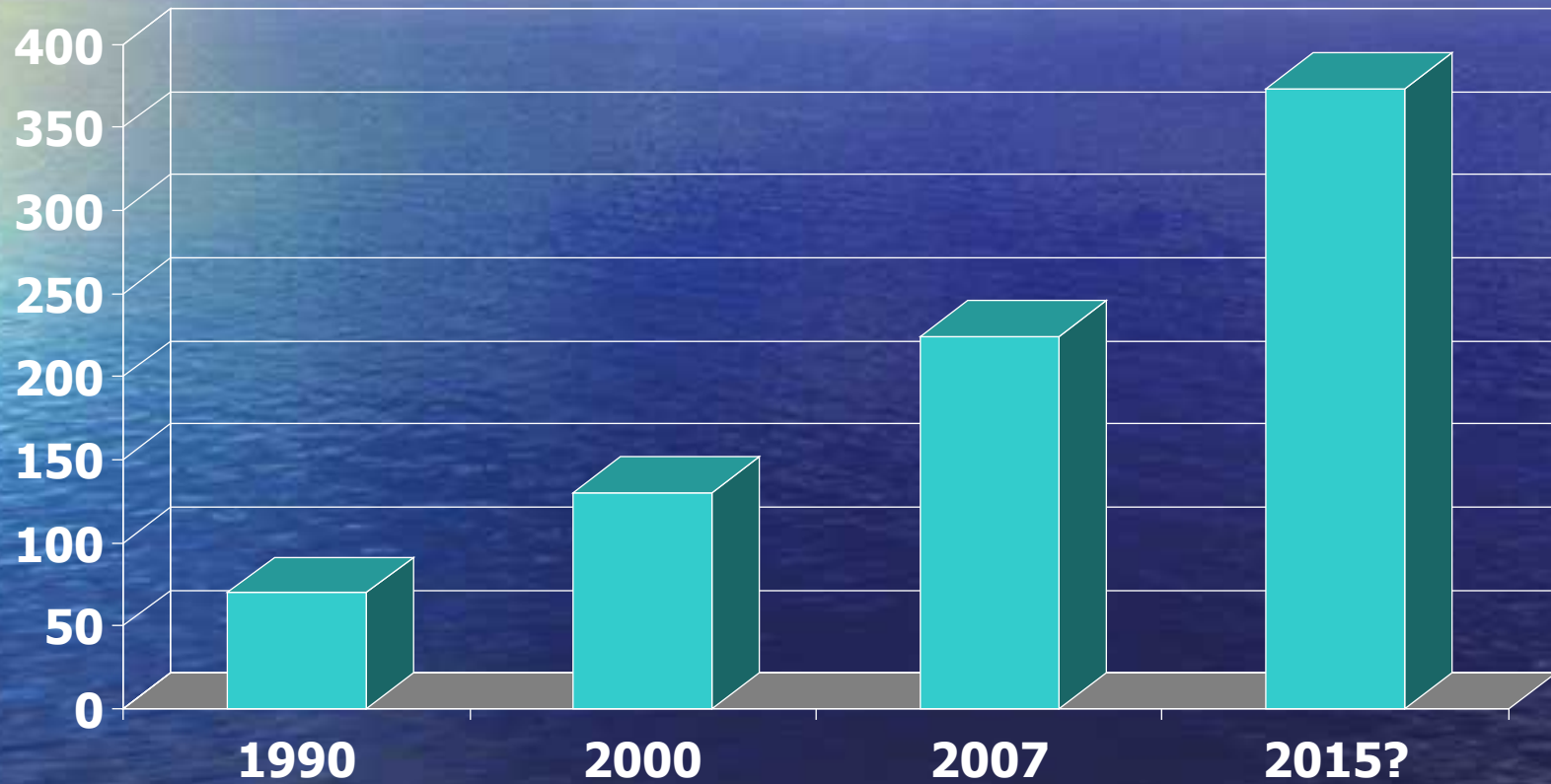
# Overview

- Shortage of Seafarers & Shore Staff
- Separation of LPG & LNG training
- Equating Training to Education Standards
- The Use of Simulators in Training
- Competence Standards

# Seafarer Shortfall

- BIMCO / ISF
- 2005
  - 2% Officer shortage (10000 persons)
- By 2015
  - 5.9% Officer shortage (27000 persons)
- Unless
  - Training increased
  - Manpower wastage reduced

# World LNG Fleet

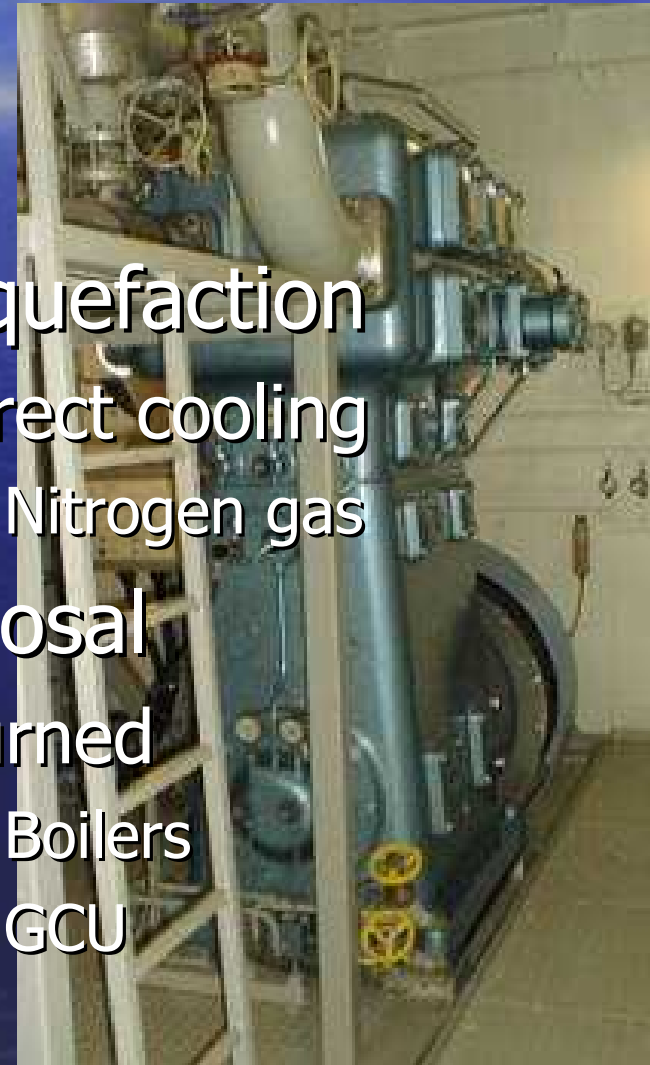


# Comparison

<u>Item</u>	<u>LPG Vessel</u>	<u>LNG Vessel</u>
Grades aboard	Multiple Positive separation	Single grade
Gas free Grade change	May be frequent	Pre-dock Post-dock
Ship types	1G            2G 2PG         3G	2G
Carriage condition	Up to 18.5 bar -104°C to +45°C	0.245 bar -163°C

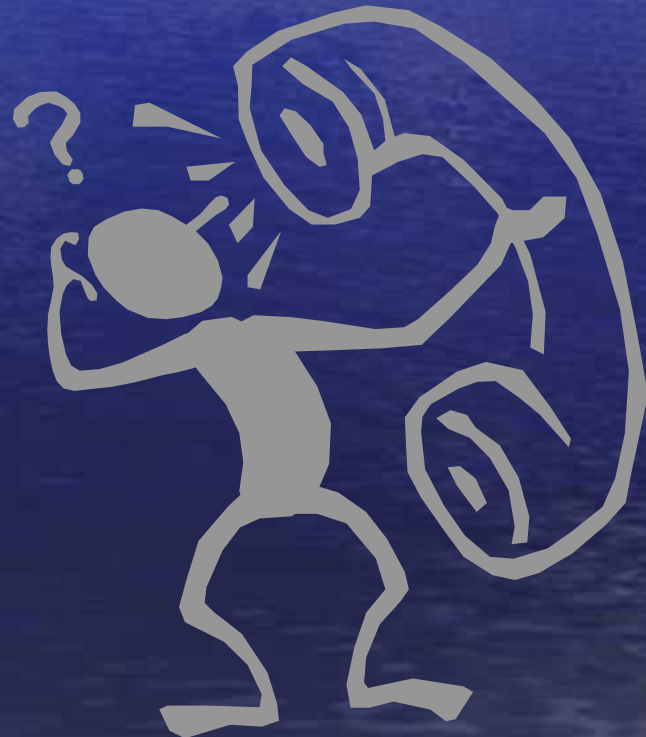
# Boil-Off Gas Management

- LPG
- Reliquefaction
  - Indirect refrigeration
  - Direct refrigeration
    - Direct cooled
    - Cascade cooled
  - Fully pressurised
    - Reliquefaction not required
- LNG
- Reliquefaction
  - Direct cooling
    - Nitrogen gas
- Disposal
  - Burned
    - Boilers
    - GCU



# Shore Personnel

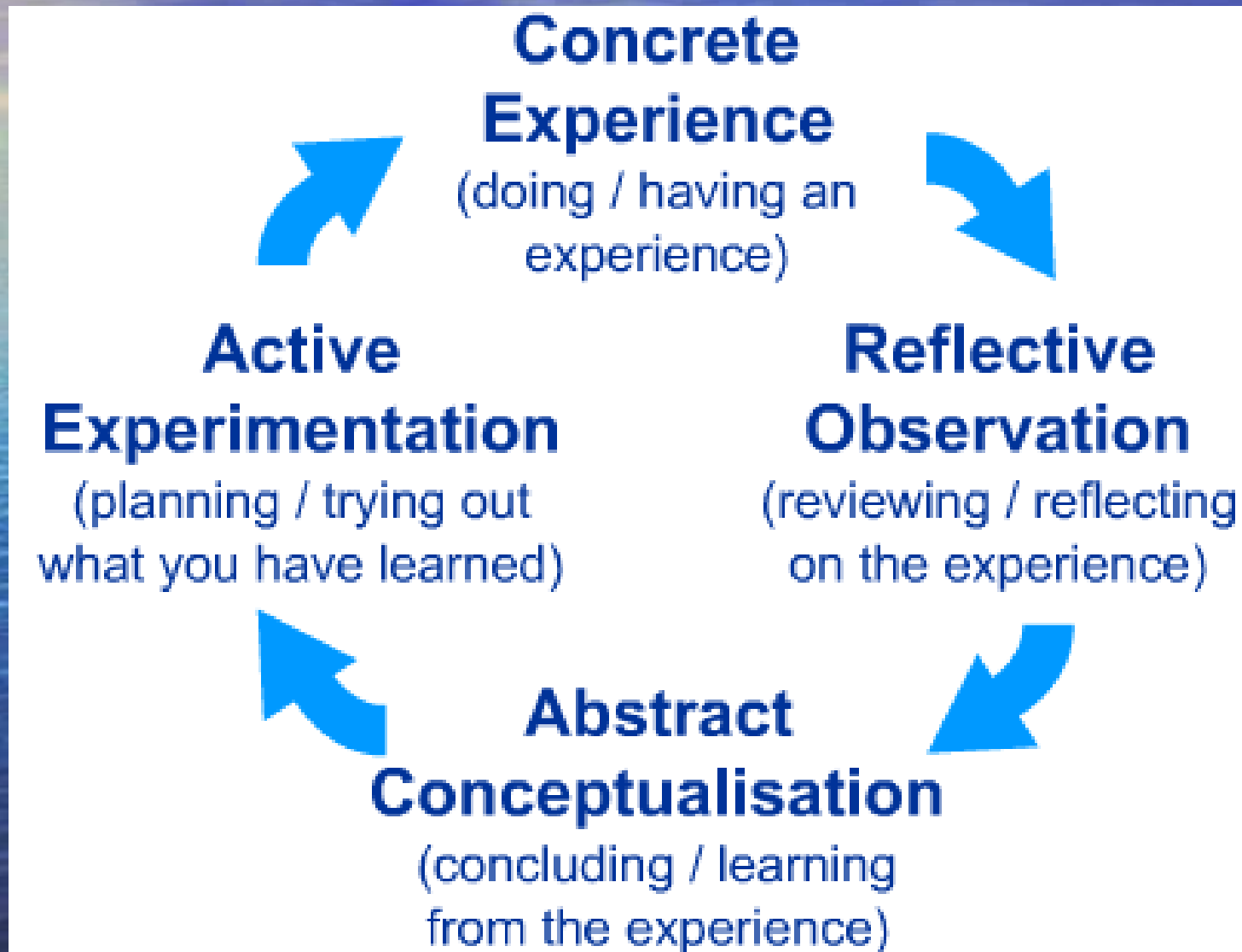
- STCW
  - Only requires training for seafarers
- Shore personnel
  - Technical management
  - Operations
  - Human resources
  - Procurement
  - Work squads



# Future Training

- Some proposals
  - Required for seagoing and shore personnel?
  - “Lower grade” certificate common to all tankers?
  - Inclusion of human factors awareness?
  - Realistic competence assessment?
  - Separation of training for LNG & LPG vessels?
  - Mandatory refresher training?
  - Referenced to known educational levels?
  - Transferable credits?

# Kolb's Learning Cycle



# Simulator Criteria

## Fidelity

- Controls & instrumentation to match the vessel

## Real Time

- Speeding up undermines the simulation

## Communications

- Integrates operations with personnel management
- Requires more instructor input

# Competence Standards

## SIGTTO LNG Suggested Competence Standard

Can train by

- Simulation
- Lecture
- CBT

All get the same certification.

Is the knowledge transfer the same with each method?

How does the employer differentiate?

**Verification of competence is required**

# Competence Standards

## DNV Competence Standard

Simple

- Knowledge
- Understanding (comprehension)
- Application
- Integration



Complex

# Competence Measurement

Knowledge

- Multiple Choice Questions

Understanding

Application

- Simulated Cargo Operation
- Check lists linked to the competence standard

Integration

- Observations
- Oral Questioning

# Conclusion

## Gas Shipping

### Excellent safety record, poor public perception

- A major incident linked to poor training or competence will damage reputation
- May lead to politically motivated solutions from regulators

### Solution

- Use industry wide competence standards
- Ensure trainers are up to the job
- Introduce verification of competence

# Questions?



# Thank You

