

PROBLEM-BASED LEARNING (PBL)

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Traditional Teaching and Learning (T&L) Model

Told what to learn

Learn

Give exercises for illustration

**Deductive
T&L**

Service/Problem-Based Learning Model

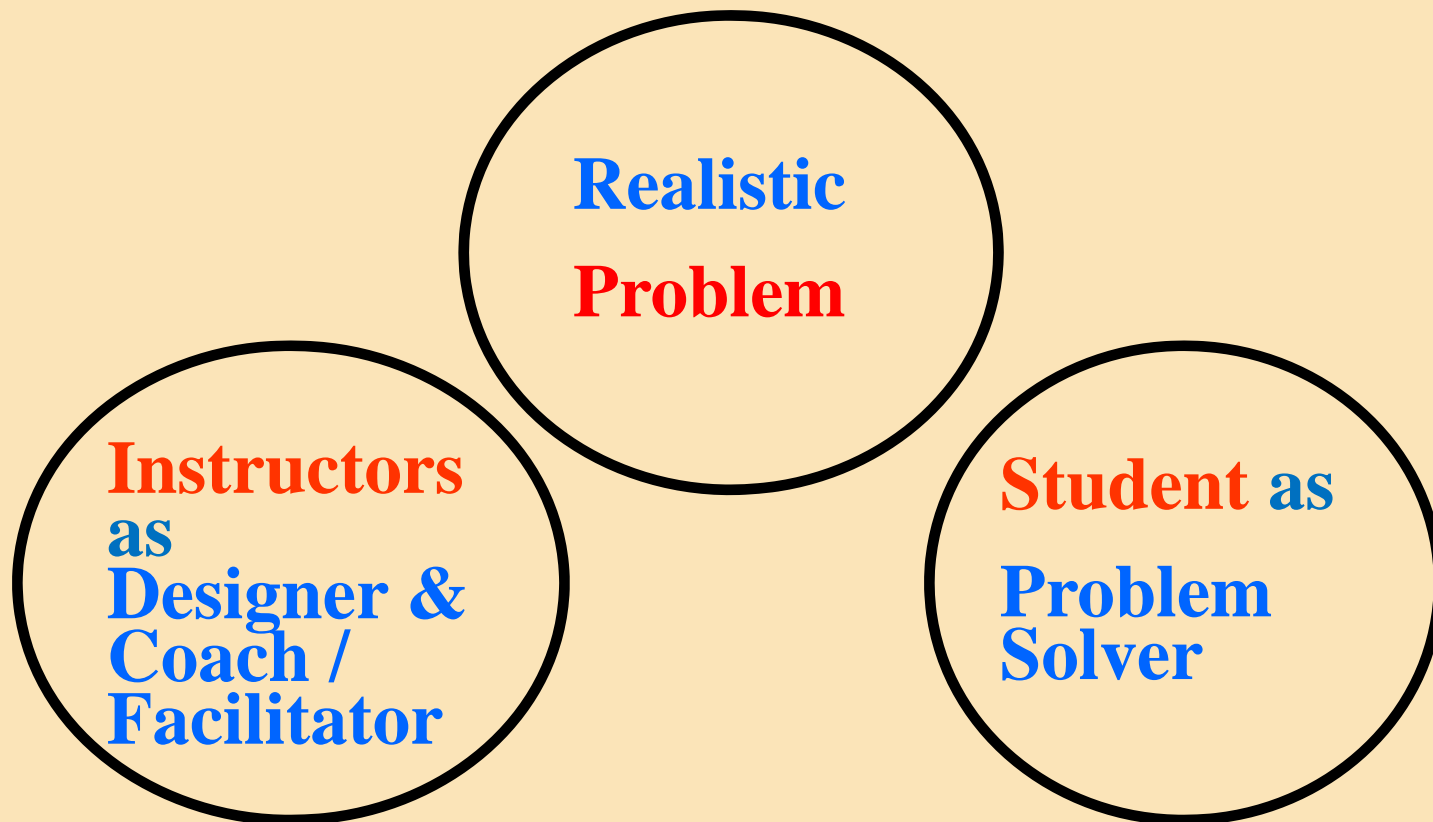
Identify what to learn

Learn

Apply

**Inductive
T&L**

Critical Elements in Problem-Based Learning (PBL)



O. S. Tan (2003)

Why PBL?

Effective outcomes based on research

Knowledge
retention

Skills

Positive
attitude

Deep learning

Meta-
cognitive skills

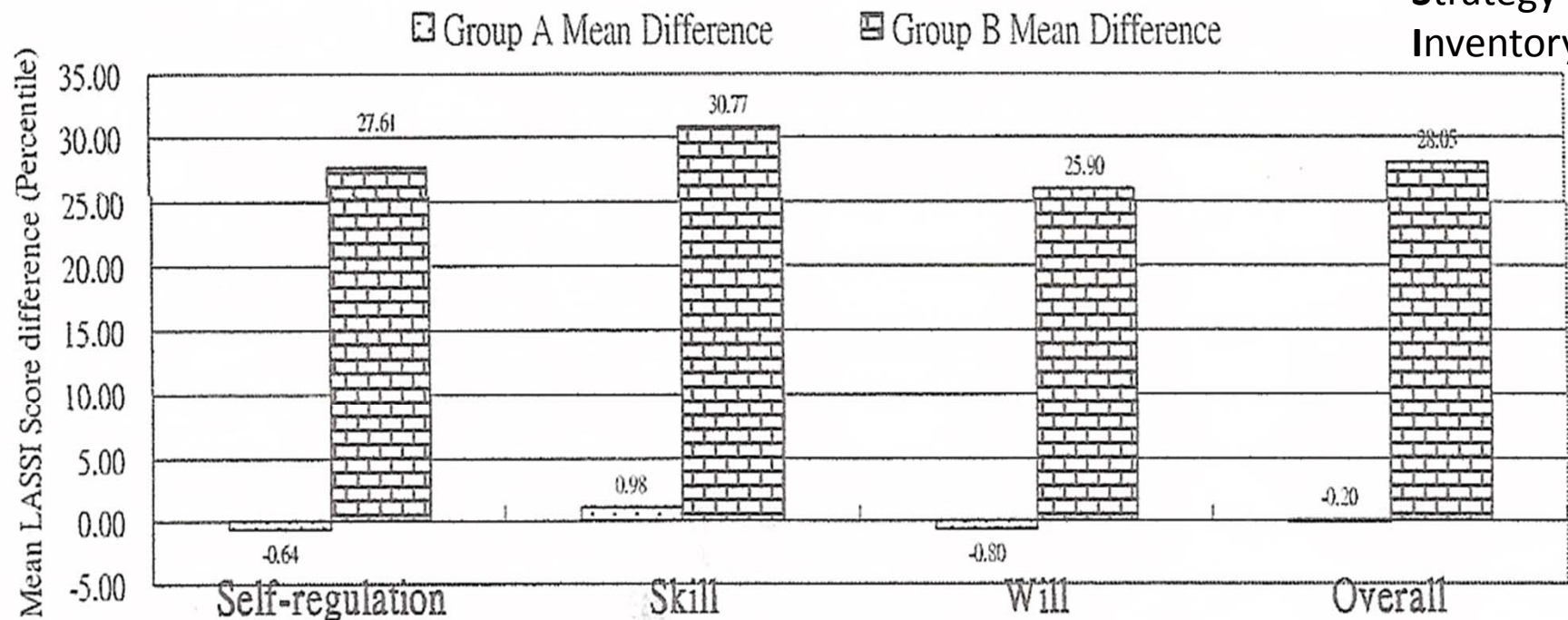
Strobel & Barneveld, 2009
Prince & Felder, 2006
Woods et al, 2000

Why PBL?

- a sample research finding

Mean difference LASSI score (3 components and overall)
 Group A (non-PBL) vs. Group B (PBL)

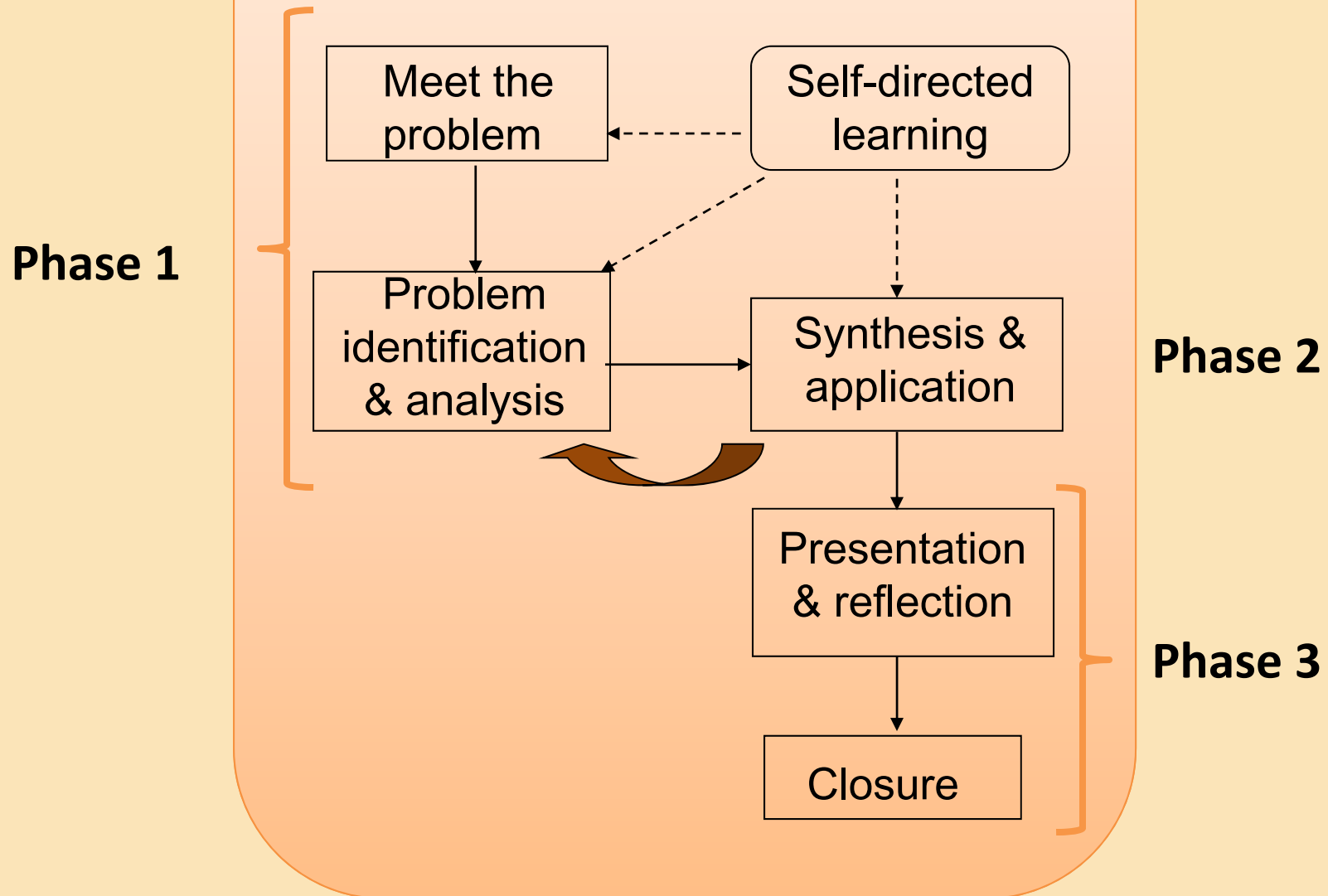
Learning
 And
 Studying
 Strategy
 Inventory



Downing 2007, 2010

$p < 0.01$ for all components

The PBL Process



PBL in a Typical Engineering Course...



Coping with change – need to explain and rationalize => MOTIVATE!!

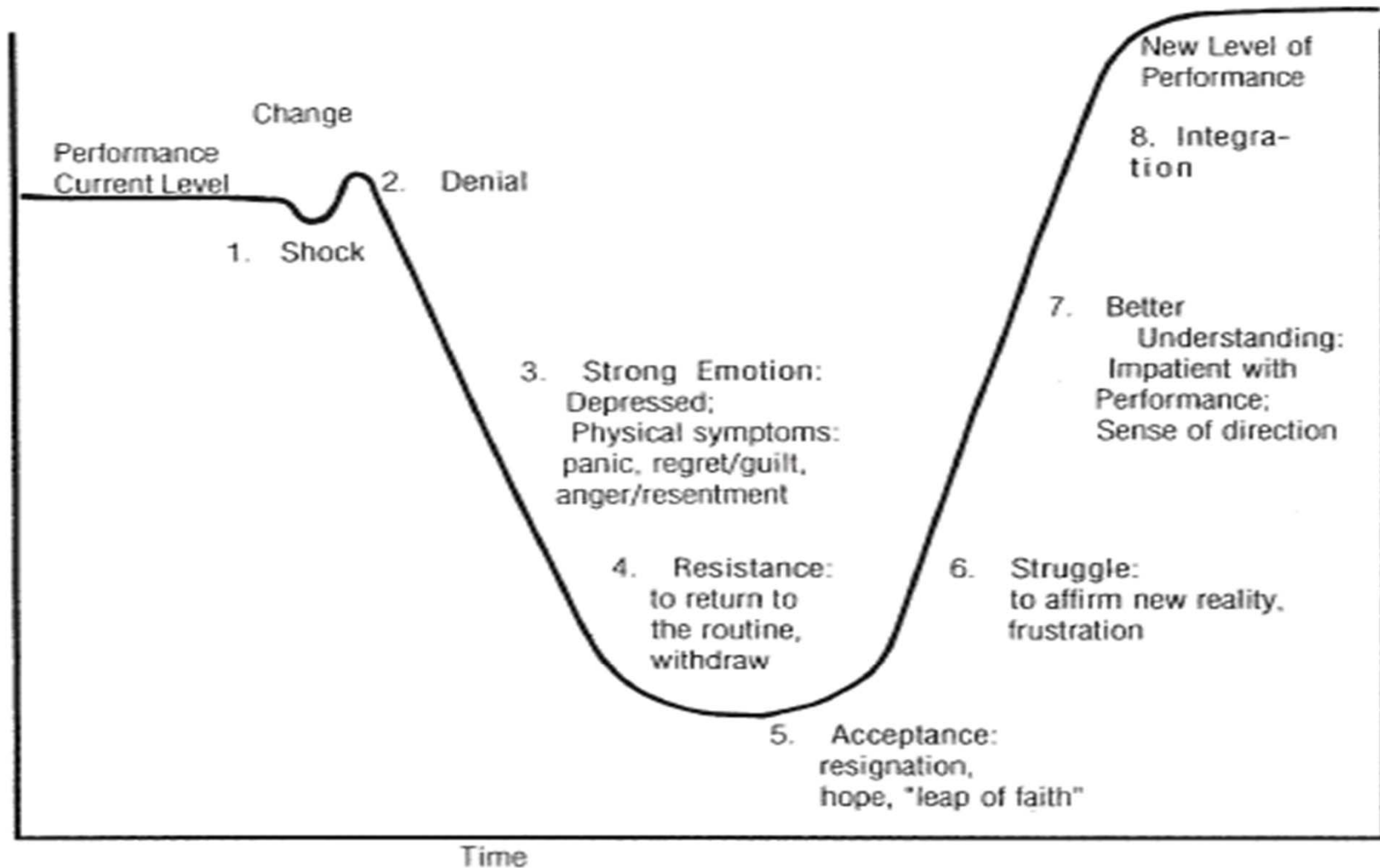
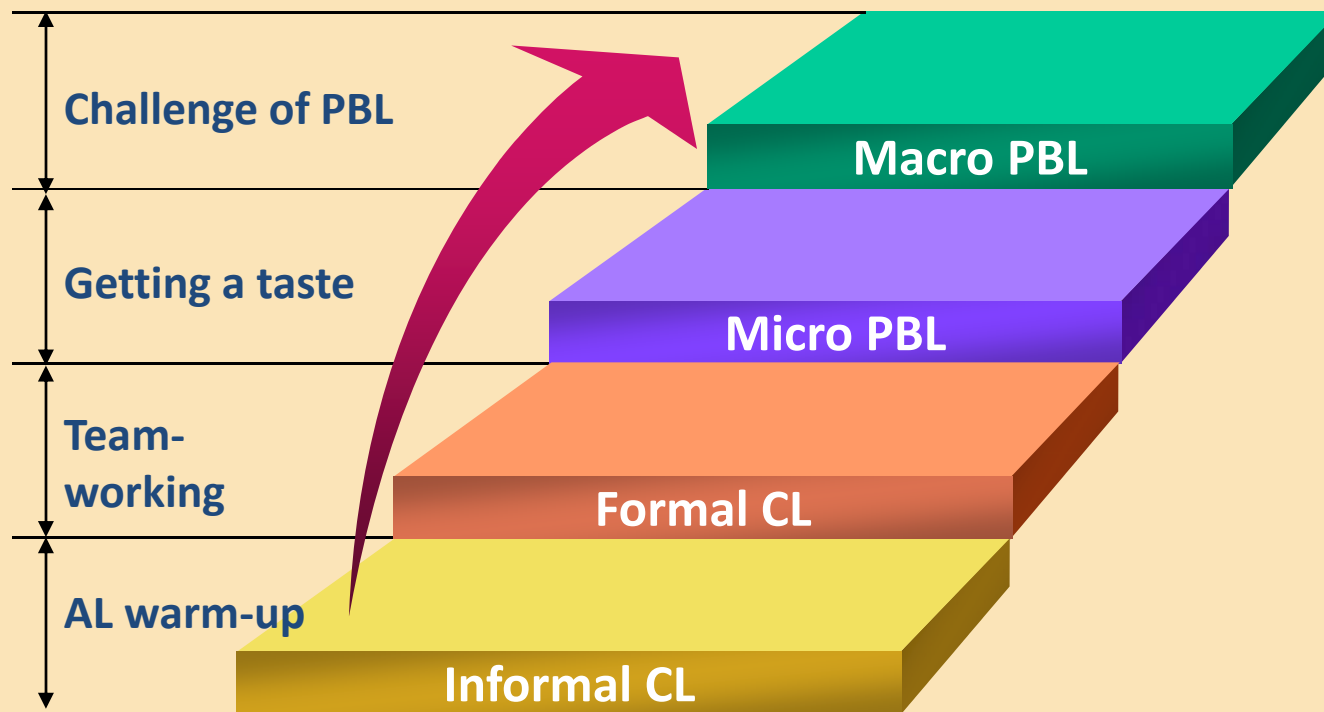


Figure 1-1 The *grieving* process as a model of how we cope with change

Gradual move towards PBL...

If unfamiliar with active learning techniques, start gradually



Go for training & read – embrace lifelong learning!