

Nothing to disclose













- Competencies are clearly articulated
- Competencies are arranged progressively
- Learning experiences facilitate the progressive development of competencies
- 4. Teaching practices promote the progressive development of competencies
- Assessment practices support and document the progressive development of competencies

COMPETENCY-BASED EDUCATION

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COMPETENCY-BASED EDUCATION



ROUTINE work

Something you've seen before or know how to deal with



Greater **complexity and severity** of illness among patients receiving care, reduced lengths of stay and increased administrative tasks

TODAY'S HEALTHCARE

NON-ROUTINE work

Something you've never seen before or don't know how to deal with

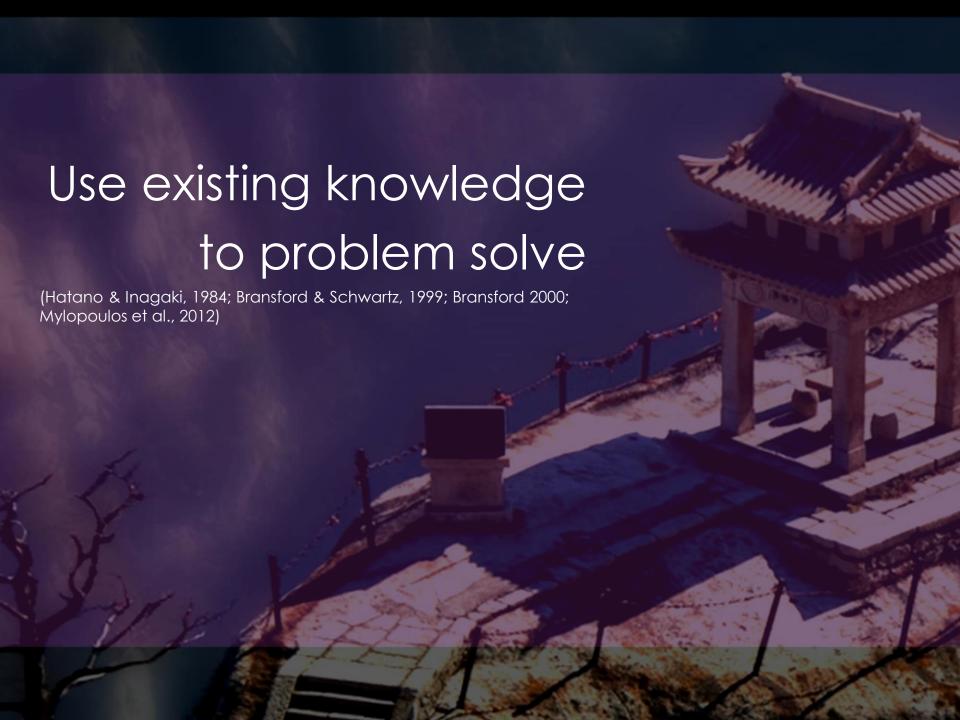




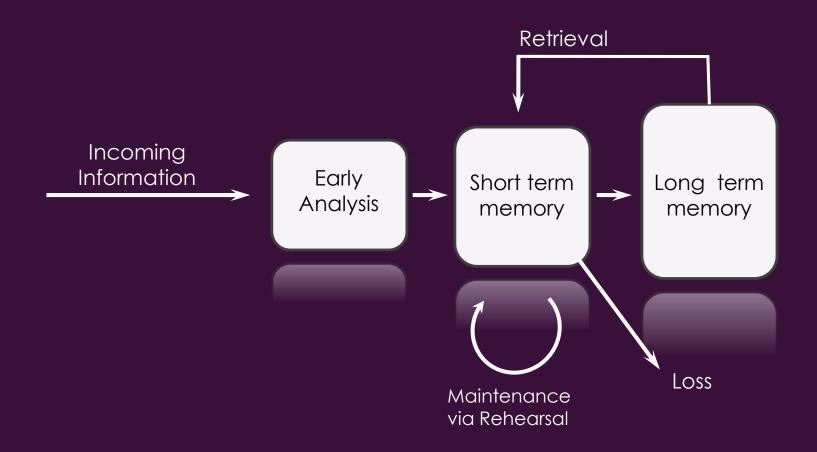




Teaching strategies, learning experiences and assessment practices must prepare learners to handle routine and non-routine clinical problems in the future









R E P E T I T I O N

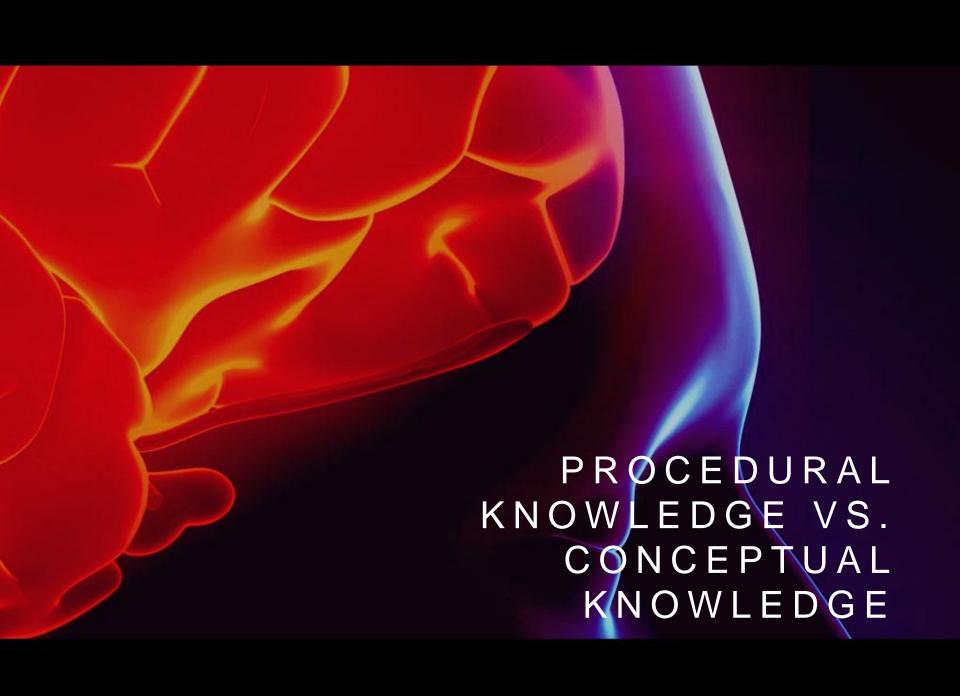
REPETITIO exprourages shallow processing





REPETITIO Name later performance

Learning experiences that emphasize repetition (e.g. remediation through repeated exposure) are insufficient for the development of domain-specific knowledge

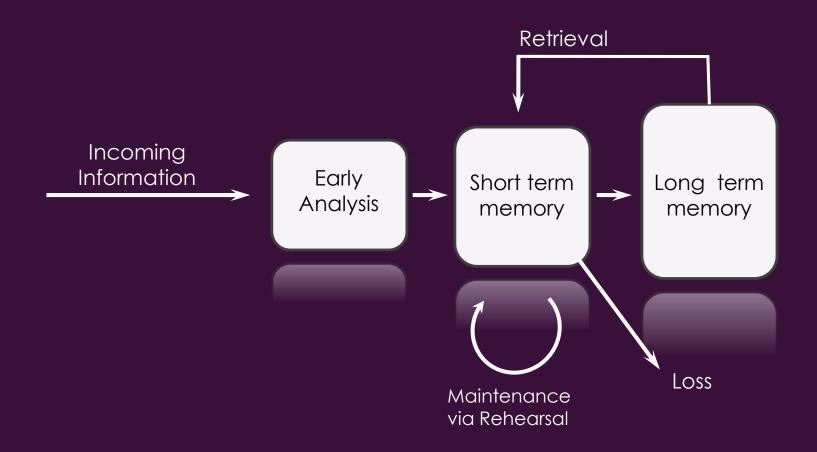


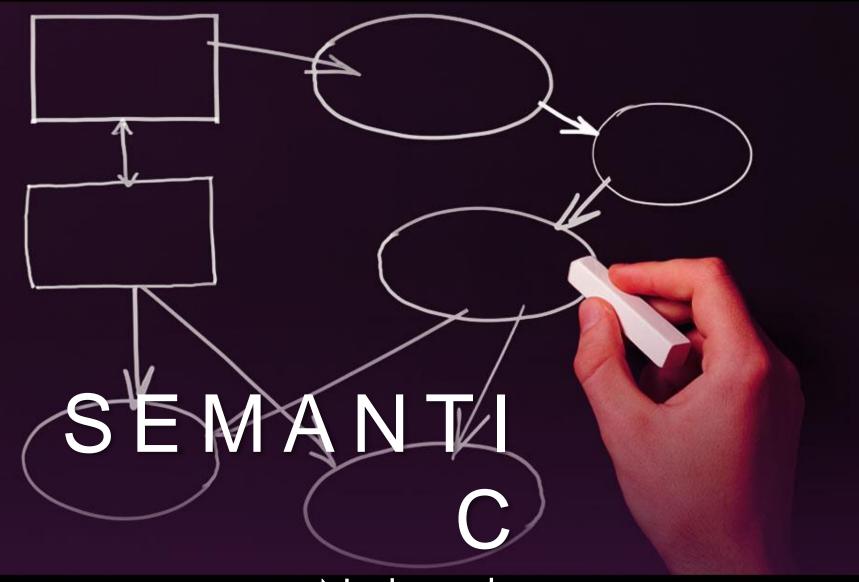
PROCEDURAL KNOWLEDGE

Knowing what to do

CONCEPTUAL KNOWLEDGE

Knowing WHY you're doing it



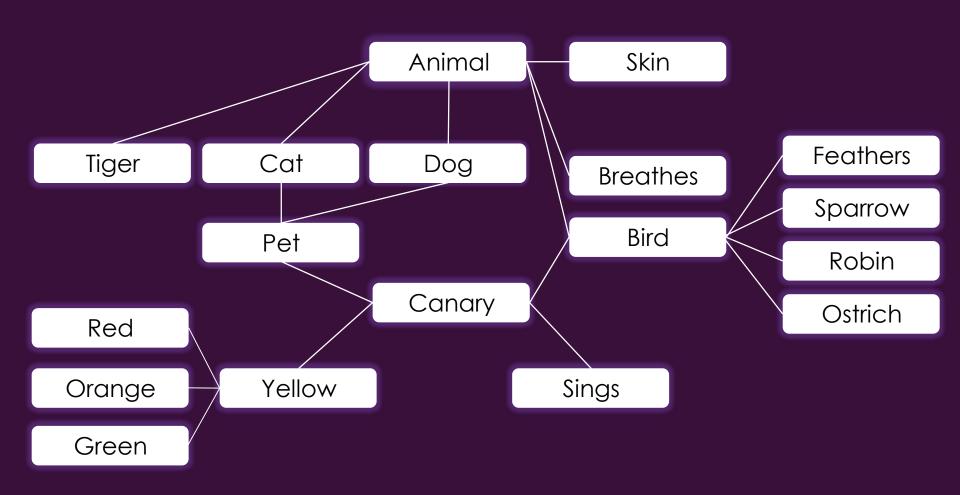


Networks



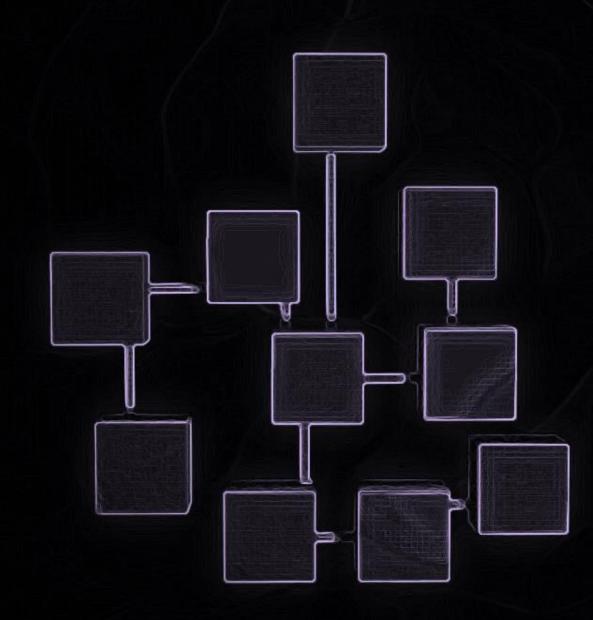






NODES clinical concepts

CONNECTORS basic science concepts



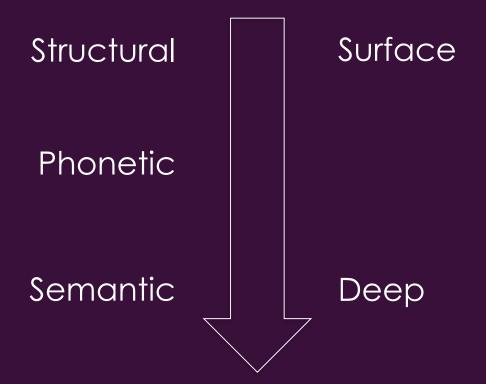
Knowing How and Knowing Why: testing the effect of instruction designed for cognitive integration on procedural skills transfer

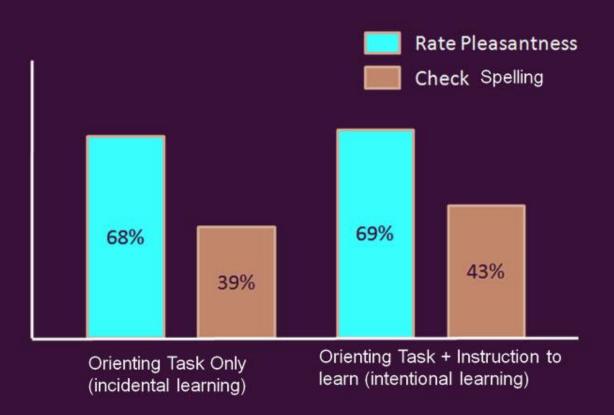
Jeffrey J. H. Cheung^{1,2} · Kulamakan M. Kulasegaram^{1,3} · Nicole N. Woods^{1,3} · Carol-anne Moulton^{1,4} · Charlotte V. Ringsted⁵ · Ryan Brydges^{1,6,7}

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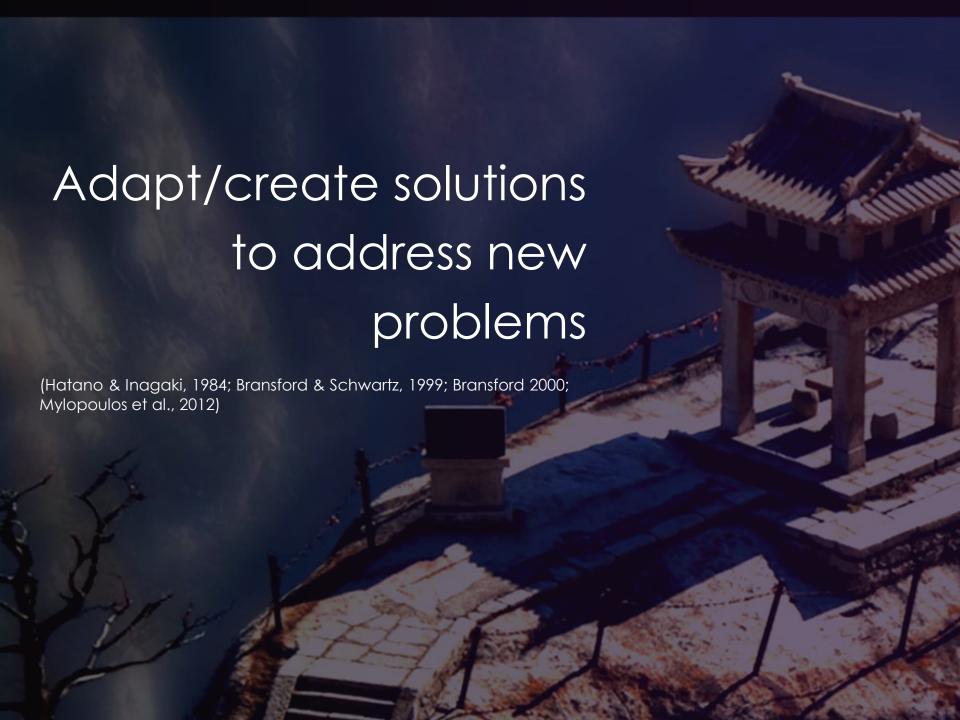




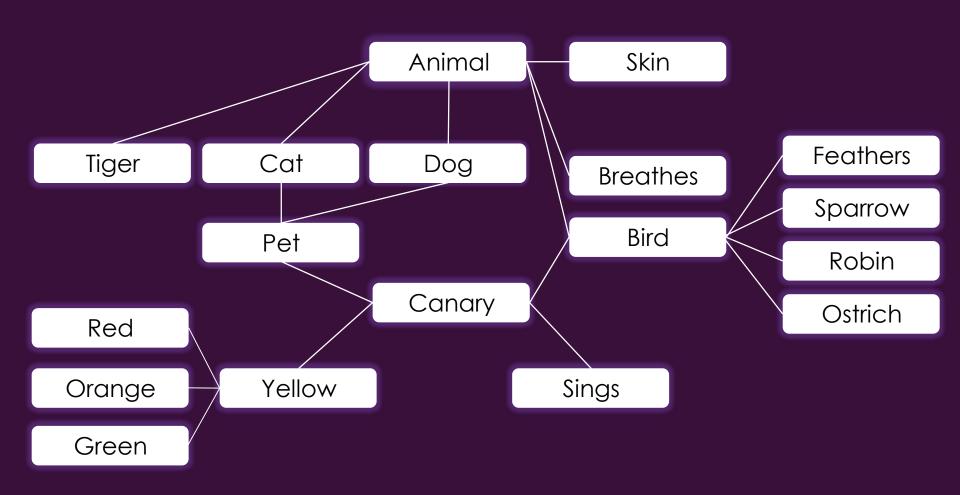




The depth of the memory trace depends on the meaning you extract from the stimulus NOT the number of times it is encountered







In solving a large number of problems, it's possible to merely learn to perform a skill faster and more accurately, without developing conceptual knowledge

CBME teaching and assessment must be carefully constructed to foster the development of conceptual knowledge through instruction and assessment that capitalizes on **VARIATION**



Learners need to experience a sufficient degree of variability to support the possibility of adaptation





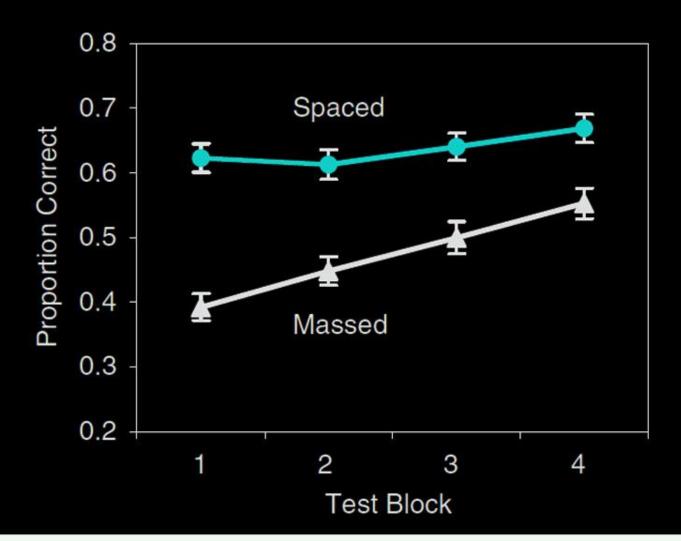










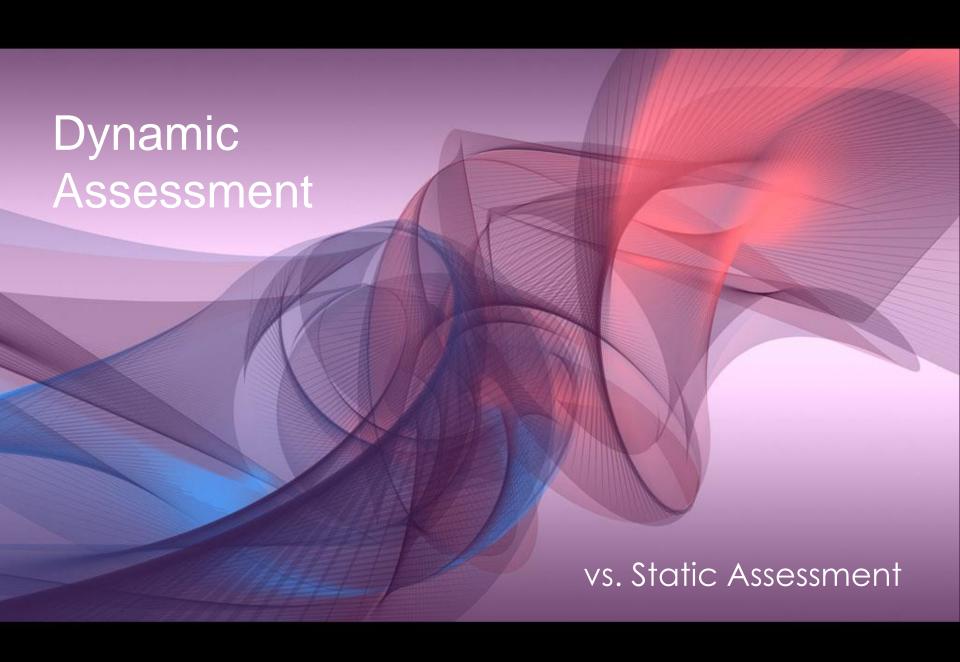


Proportion Correct

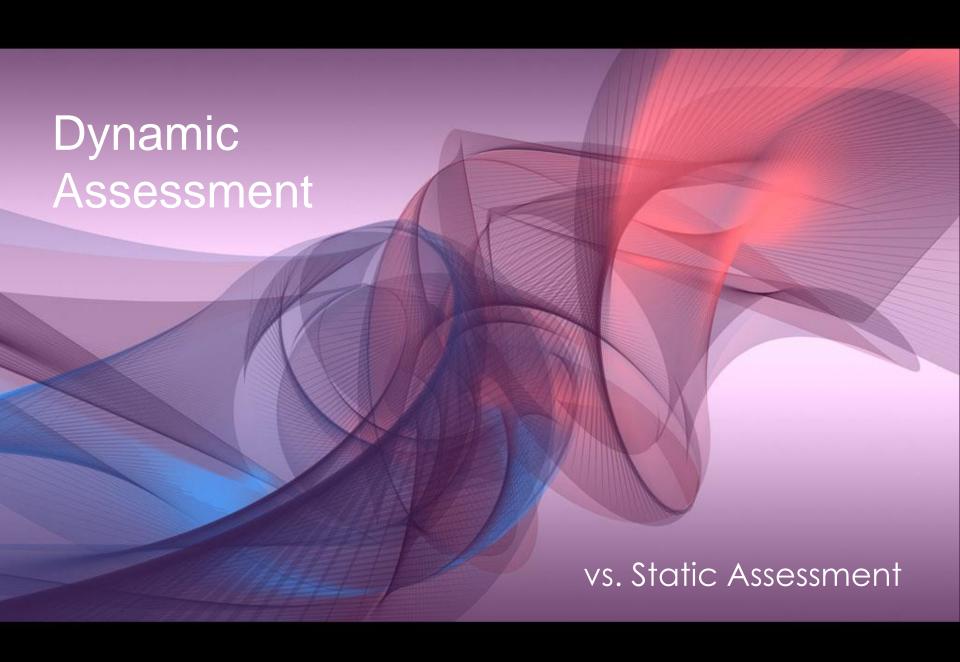
Kornell, N., & Bjork, R. A. (2008). Learning concepts and categories is spacing the "enemy of induction?"

Psychological Science





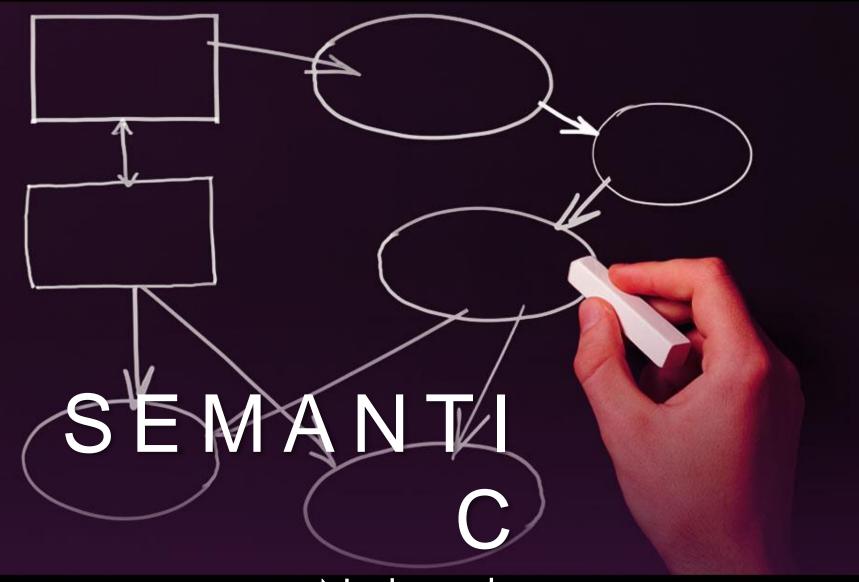
A static 'teach then test' assessment does not provide crucial information about learning processes, deficient cognitive functions.



DYNAMIC ASSESSMENT

Assesses the level of internalization (i.e., deep understanding) AND transfer value to other problems of increased level of complexity, novelty, and abstraction





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COMPETENCY-BASED EDUCATION

CBME can support training for routine and non-routine problems.

Adaptive experts use existing knowledge to solve routine problems

Conceptual knowledge needed to adapt new solutions for non-routine problems

Support development of conceptual knowledge through integration, contextual variation and dynamic assessment



Integration, Competence & EXPERTISE:

Preparing learners for the future