Course 2 – Day 3

Deep learning

Developing transferable knowledge and skills in the 21st century

Two views of 21st century skills:

1. **Skills as general skills**

   -    applied to a range of different tasks in various academic, civic, workplace, or family contexts.

2. **Skills as dimensions of expertise specific to- and intertwined with- knowledge within a particular domain of content and performance**
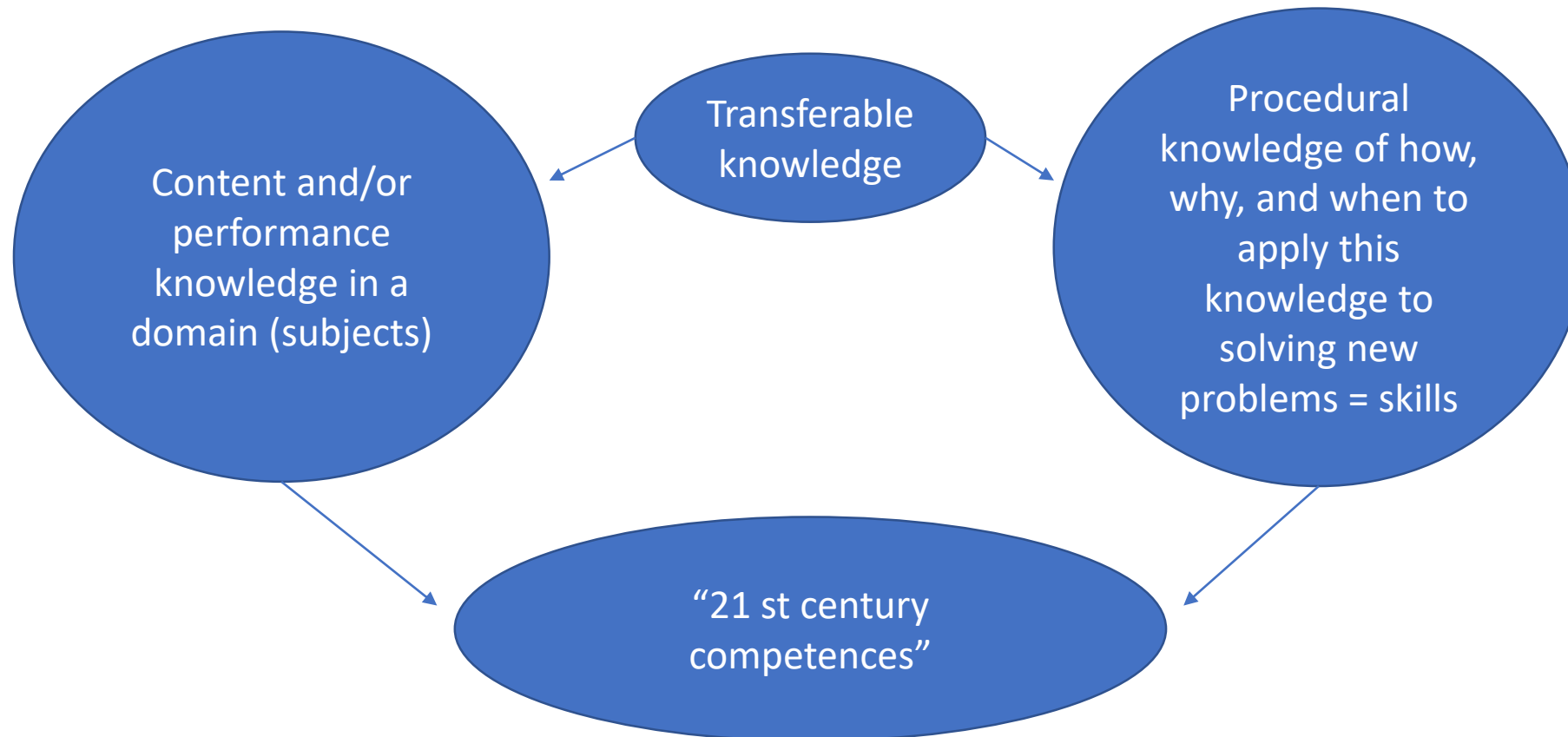
   -    skills and knowledge are intertwined therefore use the concept competencies rather than skills.

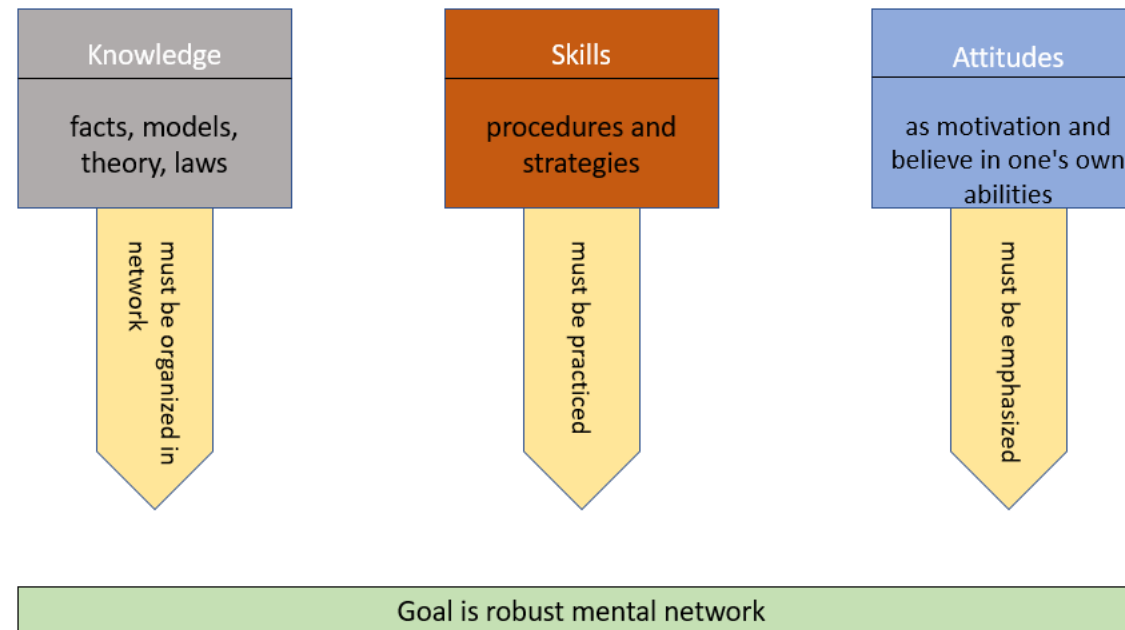   References within National Research Council (2012).

Picture: Pixabay.com

- "Deeper learning": The process through which an individual becomes capable of taking what was learned in one situation and applying it to new situations → transfer
- Product of deeper learning: transferable knowledge

Transferable knowledge

Content and/or performance knowledge in a domain (subjects)

Procedural knowledge of how, why, and when to apply this knowledge to solving new problems = skills

"21 st century competences"

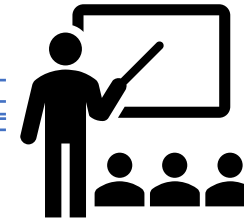References within National Research Council, 2012

Modell for deeper learning

- Deeper learning is a process that means to organize knowledge in hierarchical structures around central ideas in subjects that emphasizes on general patterns, general principles and models
- Too be able to learn we need to experience meaning, control/mastery, and avoid mental over load.
- Example on how to model deeper learning as a process divided into knowledge, skills and attitudes

Knowledge	Skills	Attitudes
facts, models, theory, laws	procedures and strategies	as motivation and believe in one's own abilities
must be organized in network	must be practiced	must be emphasized

Goal is robust mental network

Mayer, 2011

Knowledge, cognitive and affective dimension

The Knowledge Dimension (The Noun)	The Cognitive Process Dimension (The Verb)					
	1: Remember	2: Understand	3: Apply	4: Analyse	5: Evaluate	6: Create
A: Factual Knowledge						
B: Conceptual Knowledge						
C: Procedural Knowledge						
D: Metacognitive Knowledge						

(Krathwohl, 2002; Krathwohl, Bloom, & Masia, 1964)

Affective Dimension

1.0 «Reception»

    1.1 Awareness

    1.2 Willingness to «reception»

    1.3 Directed Attention

2.0 Responding

    2.1 Compliance in responding

    2.2 Willingness in responding

    2.3 Satisfaction in responding

3.0 Valuation

    3.1 Accepting of a value

    3.2 Preference for a value

    3.3 Convinced by a value

4.0 Organization

   4.1 Form a notion of a value

    4.2 Organizing a value system

5.0 Be characterized by a value or value system

    5.1 Generalization

    5.2 Characterization

Deep learning as development of competences

- Takes time: a process not a product, both within each student and through social interaction

- Some characteristics on teaching giving DL.
  - Based on rich and relevant themes
  - Clear learning goals (especially in informal learning environments)
  - Students have many, and different opportunities of expressing their understanding
  - Ongoing assessments on what they are expressing

Cognitive

Intrapersonal

Interpersonal

Subject specific knowledge and procedures
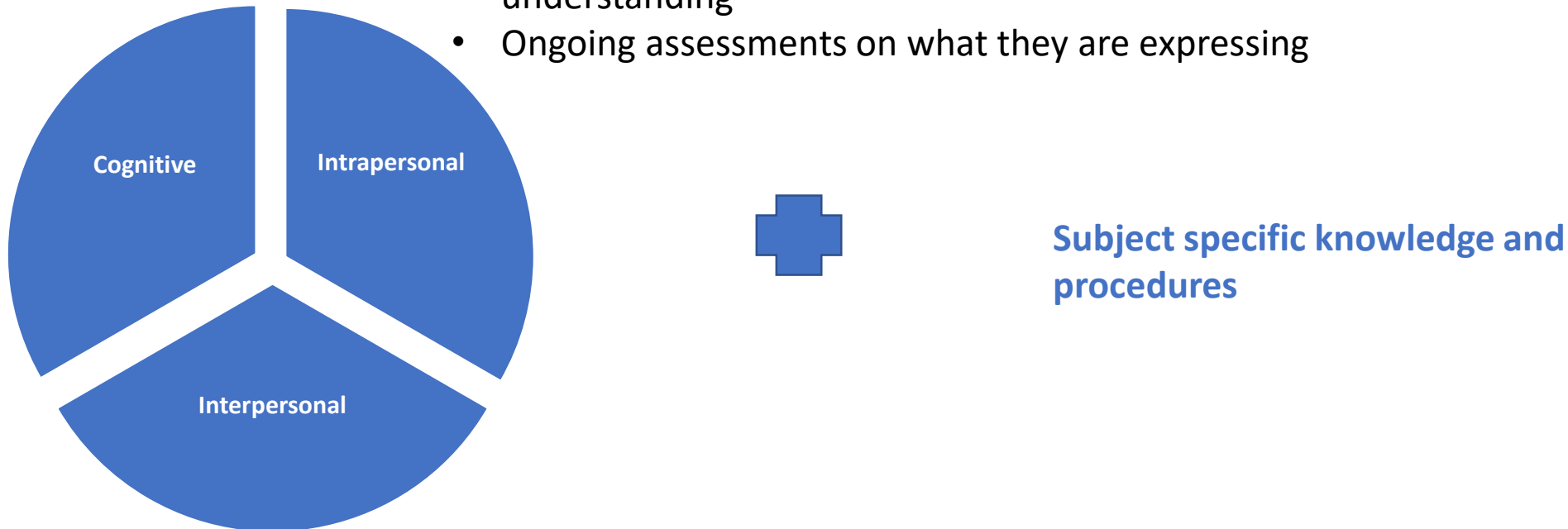
3. Group work assignment

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Kratwohl`s 2002

The 6 C`s
- Critical thinking
- Collaboration
- Communication
- Creativity
- Citizenship
- Character

- Work in groups.
- Look at the table above and discuss where the 6 C`s can be applied, both in general and in relation to a chosen task/your teaching resource from the intermission work.