Learning Outcomes: center of the educational process and curricular alignment

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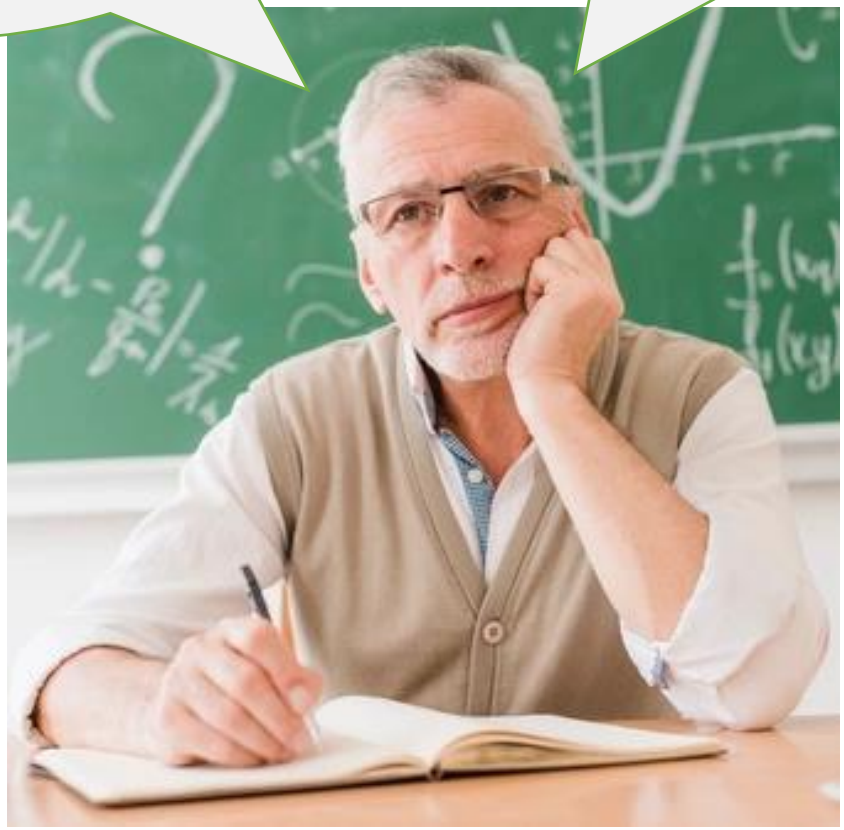
CIME UDD

What do I want my students to be able to think and do at the end of this course?

How will students differ at the end of the course?

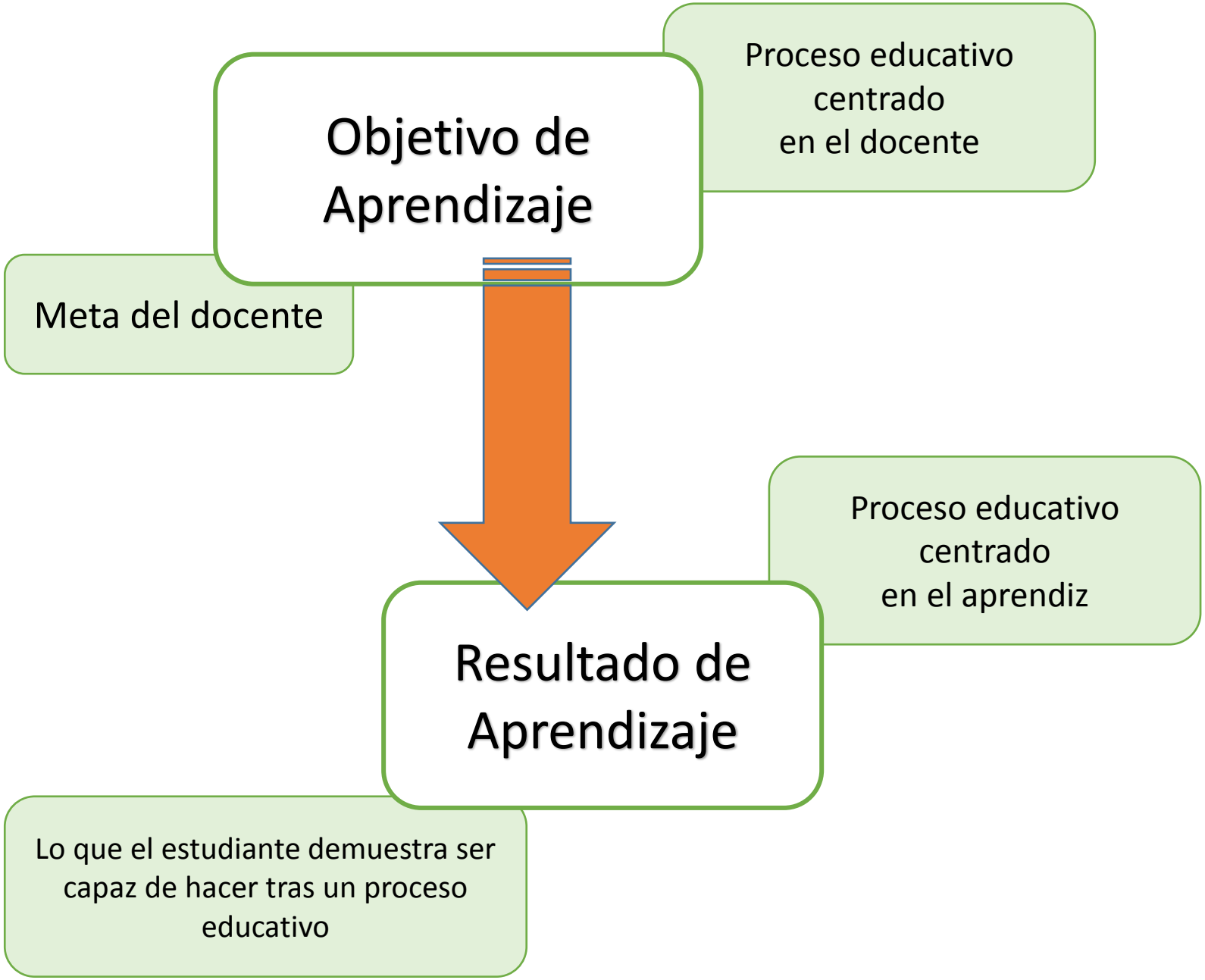


The answers to these questions are the **learning objectives of the course from the teacher's perspective.**

What will I be able to do once I finish this course?

How will I change at the end of this course?

The answers to these questions are **the learning outcomes of the course from the student's perspective.**


Objetivo de Aprendizaje
Proceso educativo centrado en el docente
Meta del docente
Resultado de Aprendizaje
Proceso educativo centrado en el aprendiz
Lo que el estudiante demuestra ser capaz de hacer tras un proceso educativo

Learning Outcomes (LO)

- **Statements about what a learner is capable of doing when completing a learning process.**

(Bingham, 1999; ECTS Users' Guide, 2015; Gosling & Moon, 2001; Kennedy, Hyland, & Ryan, 2007).

Learning Outcomes (LO)

- Written formulations that have a didactic purpose.
- They are precise, concrete, measurable.
- They are explicitly communicated in the subject syllabi.
- They express clearly and precisely what students will be able to demonstrate once a teaching and learning process is completed.
- They constitute the basis for guiding the educational process.
- They become the "road map" for teachers and students.
- They guide and shape the learning and assessment activities.

Resultados de Aprendizaje

Action Verb	Object or content	Context
A Verb (in infinitiva and actiony de acción)	OBJETO o CONTENIDO	CONTEXT
Deduct	Learning Theory	Pedagogical Practice

Upon completion of this course, students will be able to:
"Deduce the theory of learning that is at the base of a particular pedagogical practice."

Taxonomies

- **Bloom's Taxonomy of Thinking Skills (1956).** Six levels related to the cognitive dimension and "thinking": knowledge, understanding, application, analysis, synthesis, evaluation.
- **Review of Bloom's Taxonomy (Anderson and Krathwohl, 2001).** Two dimensions: that of knowledge (factual, conceptual, procedural and metacognitive) and the categories of knowledge (six levels: remember, understand, apply, analyze, evaluate and create).Bloom's Taxonomy for the Digital Age (Churches, 2008).
- Then, it maintains the levels remember, understand, apply, analyze, evaluate and create, but with verbs related to the **context of Information and Communication Technologies (ICTs)** and that describe activities in the digital field.

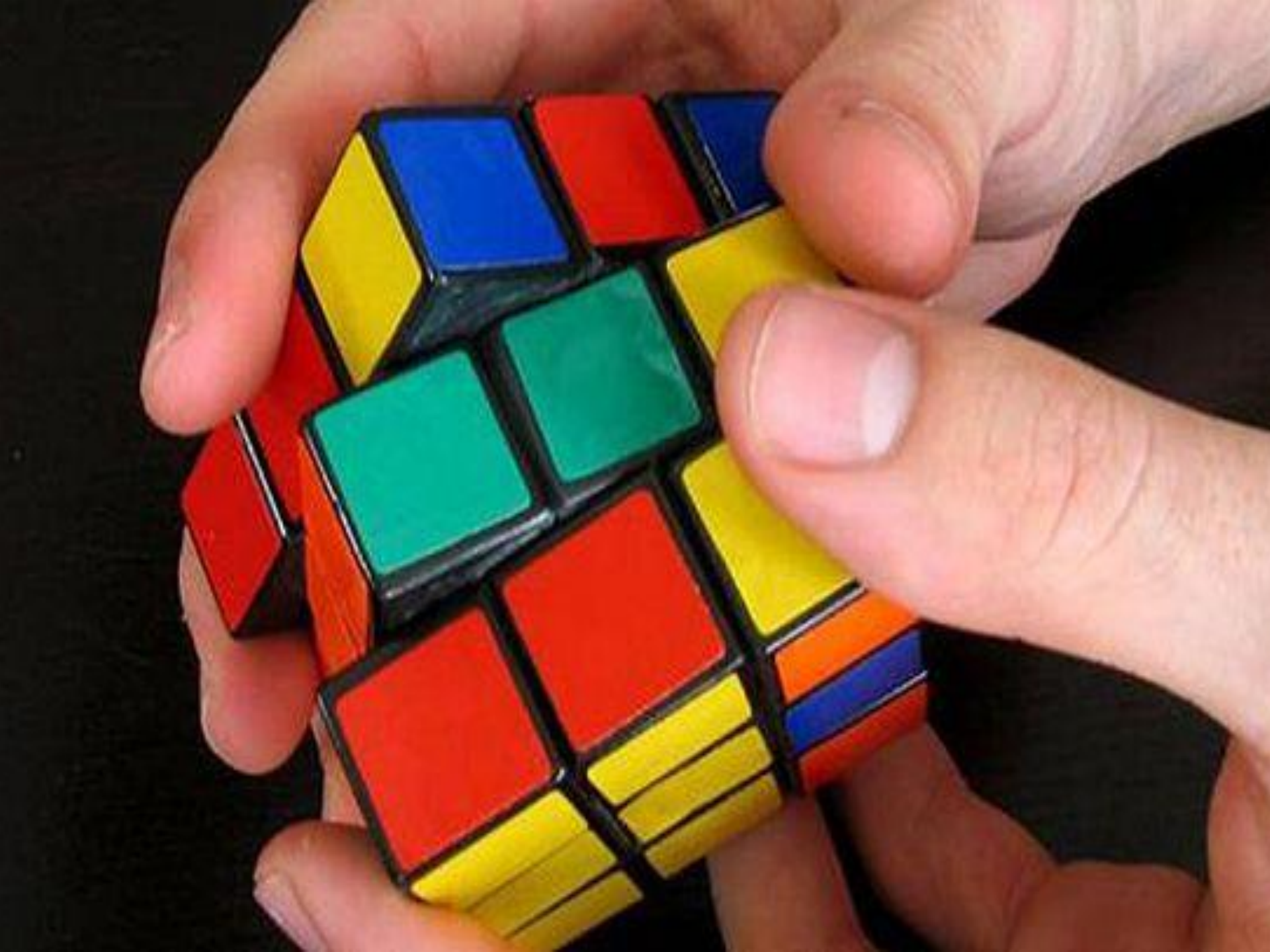
Taxonomies

- **Taxonomy of meaningful learning (Fink, 2003).** Based on the concept of change and meaningful learning. Six levels: fundamental knowledge, application, integration, self-knowledge and others (human dimension), motivation (affective and attitudinal dimension), learning to learn.

- **SOLO- Structure of the Observed Learning Outcomes Taxonomy (Biggs, 2006,).** Classify learning outcomes according to their complexity: pre-structural, unistructural, multistructural, relational, and extended abstract.

Taxonomies

- **New Taxonomy of Marzano and Kendall (2007, 2008).** Mental processes that control how other processes operate, in which 6 mental systems are involved: 4 cognitive (1-recovery, 2-understanding, 3-analysis, 4-utilization), 5-metacognitive (strategic) and 6-self.
- **ICAP Taxonomy (Chi and Wylie, 2014).** Based on cognitive engagement activities, divided into four modes: Interactive (dialogue, co-create, innovation)> Constructive (generate, transfer, inference)> Active (manipulate, apply, relationship)> Passive (receive, remember, storage).



Thinking Process

- **Bloom:** knowledge, understanding, application, analysis, synthesis, evaluation
- **Anderson:** Retrieval, Understanding, Analysis, Utilization
- **Marzano:** remember, understand, apply, analyze, evaluate and create

Nivel de Aprendizaje		Habilidad Cognitiva	Verbos Asociados
6	**Crear**	Crear un nuevo producto	Construir, diseñar, inventar, innovar.
5	**Evaluar**	Justificar una posición	Criticar, defender, juzgar, justificar, decidir, sugerir, diagnosticar.
4	**Analizar**	Distinguir las partes y sus componentes	Comparar, deducir, inferir, relacionar, diferenciar, organizar, integrar.
3	**Aplicar**	Aplicar información en una forma nueva	Calcular, interpretar, resolver, utilizar, emplear.
2	**Comprender**	Explicar ideas y conceptos	Asociar, clasificar, distinguir, seleccionar, explicar.
1	**Recordar**	Reconocer información básica	Definir, describir, enumerar, identificar.

Thinking Process

Level 1 Memory and Recognition of information and data	Level 2 Analytical and managementof knowledge	Level 3 Transfer and deployment of cognitive performance
define, describe, name, identify, enumerate, list, select, distinguish, indicate, classify, categorize, differentiate, explain.	calculate, compare,apply, employ, analyze, relate, examine, organize, use, argue, debate,infer, deduce, investigate,integrate, synthesize, summarize interpret, defend.	build, create, design,plan, invent, modify, propose, conclude, decide,evaluate, criticize, solve,solve, judge, justify, suggest,innovate, diagnose.

PARA QUÉ SE APRENDE

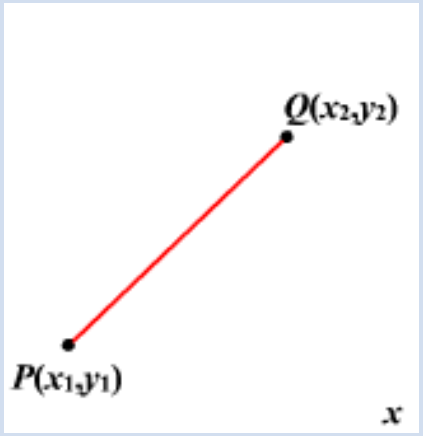
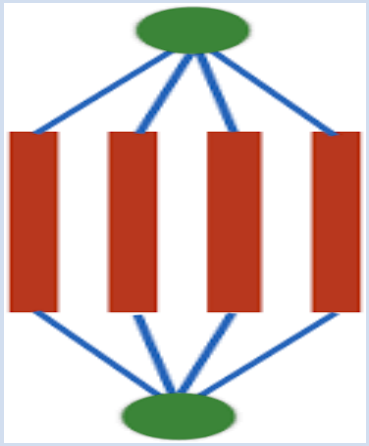
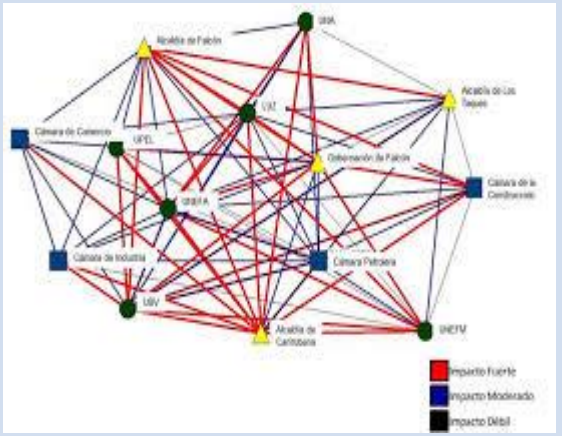
Tipo de conocimiento (contenido)

- Anderson y Krathwohl (2001): Factual, Conceptual, Procedural, Metacognitivo

Conceptual Know	Procedural/ Do	Be Decide (actitudinal/emotional)

Cognitive Complexity

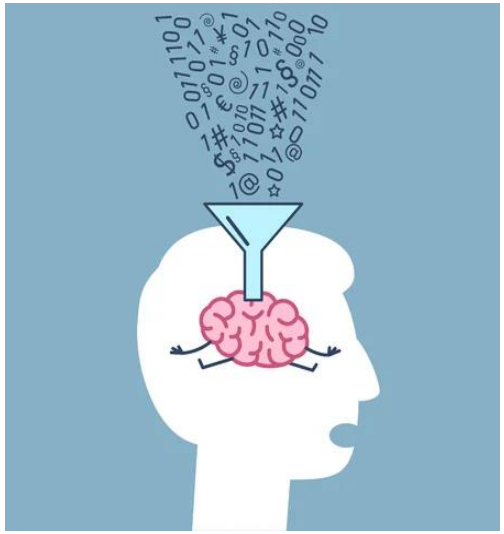
- **SOLO:** Pre-structural, Unistructural, Multistructural, Relational and Extended Abstract.

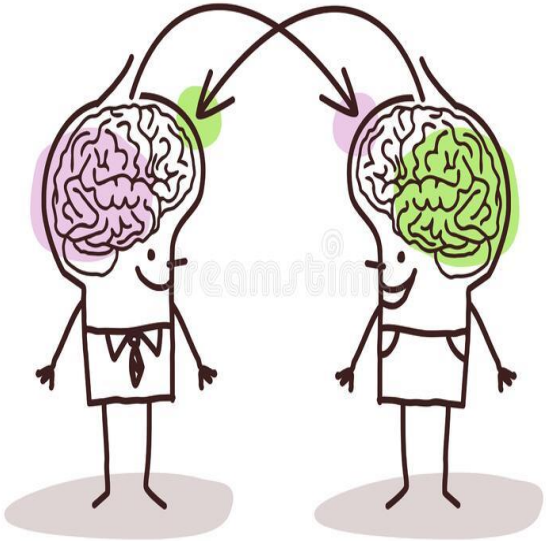
Uni-estructural	Multi-estructural	Inter-estructural
		

Cognitive Involvement

- **ICAP:** Interactive, Constructive, Active, Passive

Pasive	Active	Co-constructive
receive, store	Integrate, relate	co-create, innove

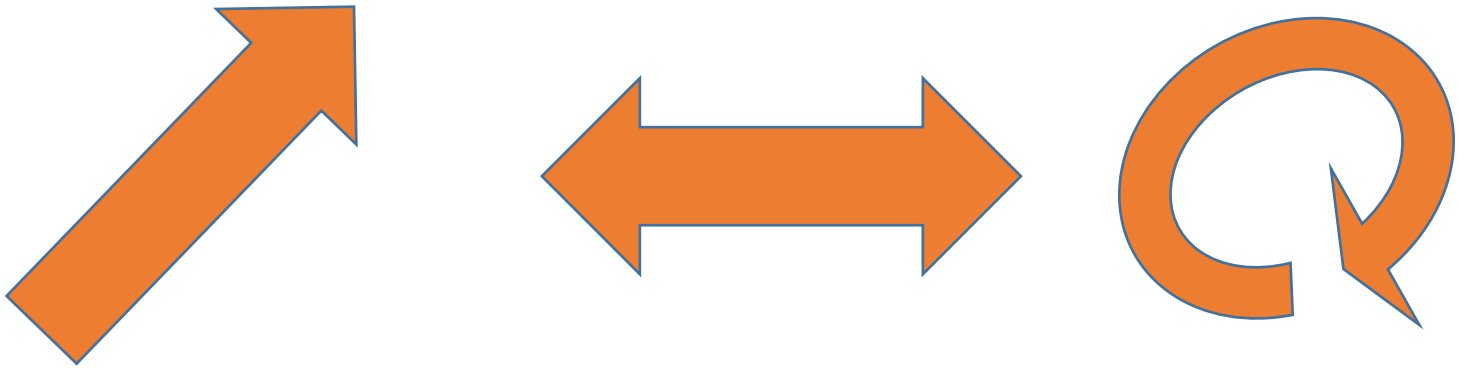




Maturity of Thought

- **Fink:** Autoconocimiento y de otros (dimensión humana), motivación (dimensión afectiva y actitudinal), aprender a aprender.

Lineal Thinking	Reversible Thinking	Self-regulation
Rigid, polarized and inflexible thinking.	Flexible thought and thoughtful	Critical thinking, and self-evaluation

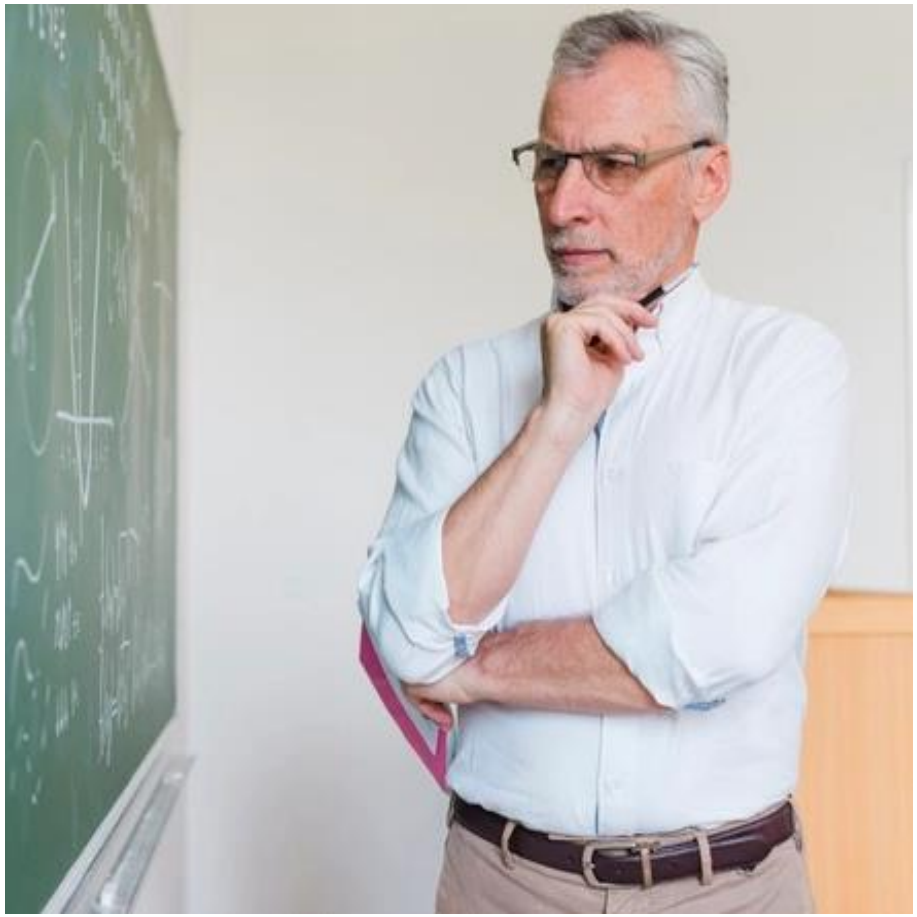


Dimensions of analysis / characterization of learning outcomes

- Thought Process
- Type of knowledge
- Cognitive Complexity
- Cognitive Engagement
- Maturity of Thought

Learning Outcomes

Action Verb	Object or content	Context
A VERV (in infinitive and action)	OBJECT or CONTENT	CONTEXT
Describe **Judge**	Theory of Learning	Pedagogical Practice



- What kinds of assessment activities will allow students to demonstrate that they can achieve these learning outcomes?

- What kinds of teaching activities will allow students to perform well on the assessment to demonstrate their learning?

Learning Outcomes

Action Verb	Object or content	Context

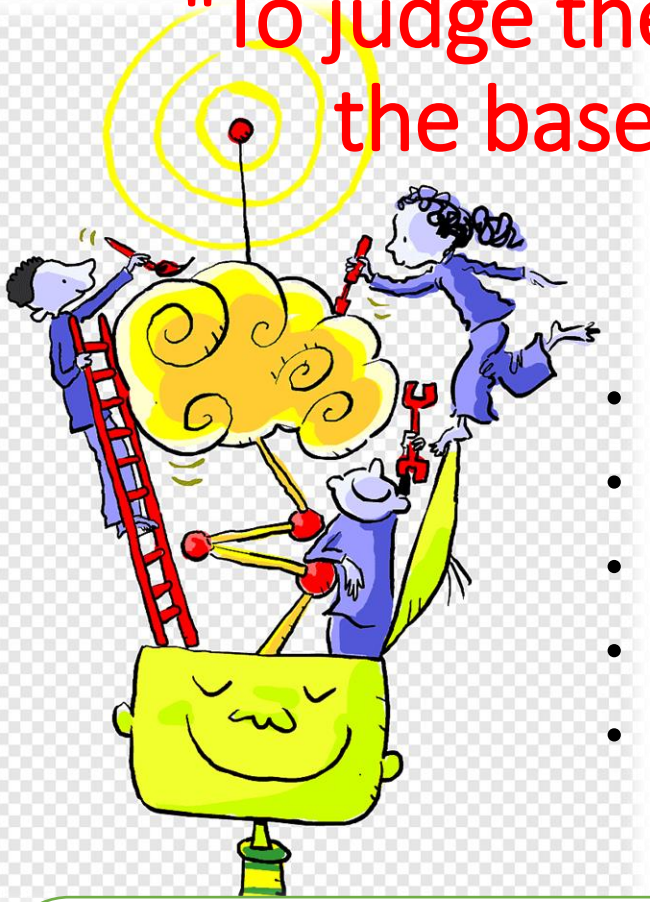
Upon completion of this course, students will be able to:

- **"Describe the main constructivist theories of school learning.“**
- **"Deduce the theory of learning that is at the base of a particular pedagogical practice."**

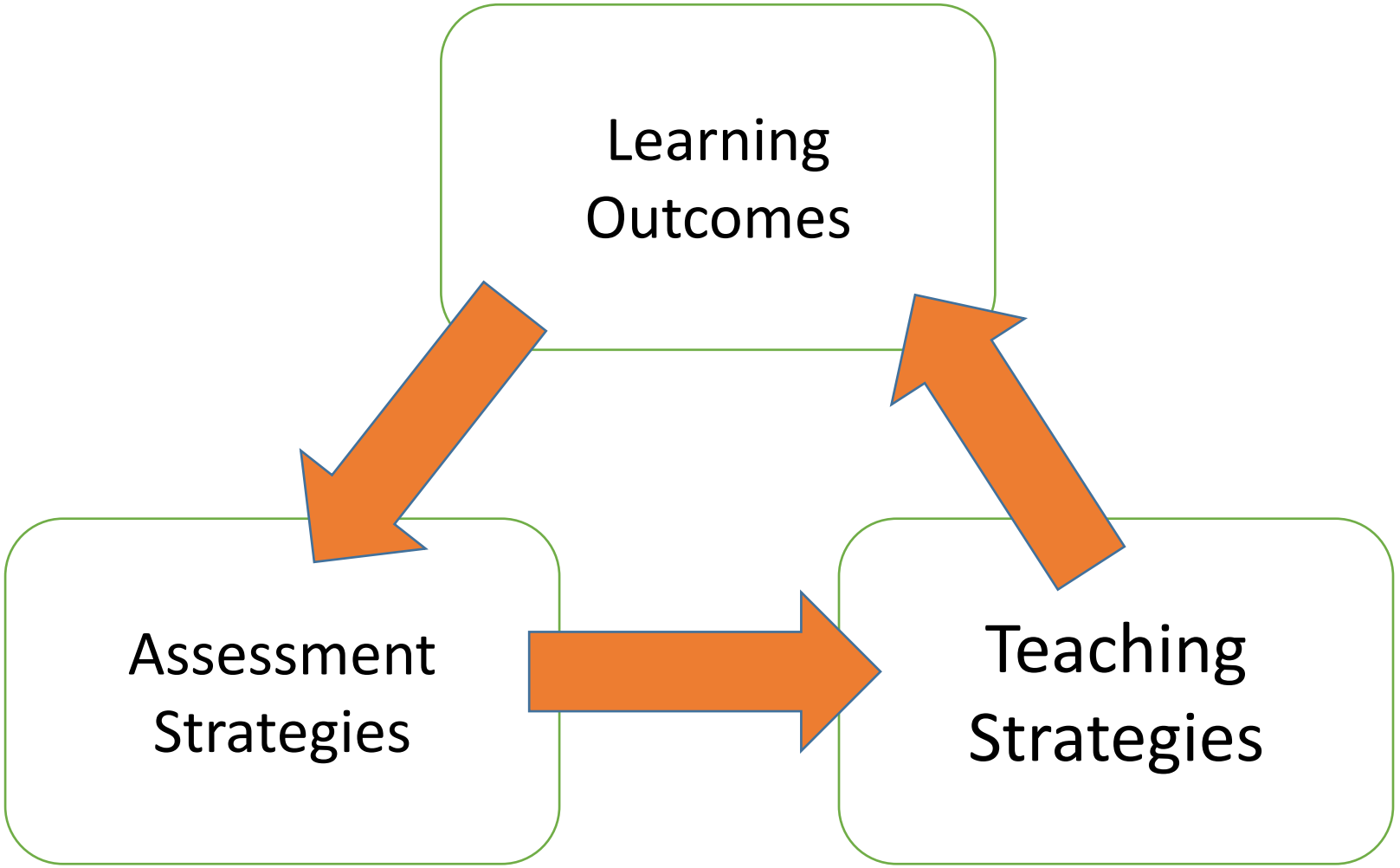
"Describe the main constructivist theories of school learning"

- Thought Process: Level 1 (recall)
- Type of knowledge: Conceptual
- Cognitive Complexity: uni-structural
- Cognitive Engagement: passive
- Thought Maturity: linear

"To judge the theory of learning that is at the base of a certain pedagogical practice".



- Thought Process: Level 3 (transfer)
- Type of knowledge: Conceptual and Procedural
- Cognitive Complexity: multi-structural
- Cognitive Engagement: co-construction
- Maturity of Thought: self-regulation


Learning Outcomes
Assessment Strategies
Teaching Strategies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