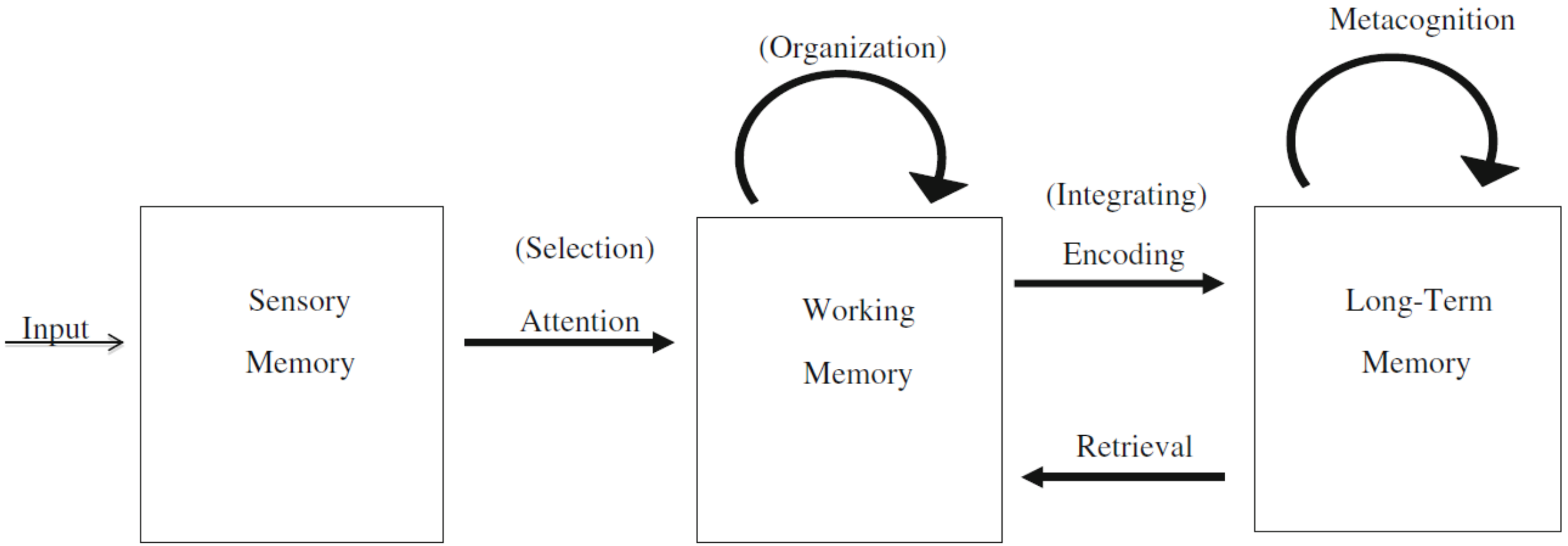
3R vs SOAR, which of these strategies is the most efficient for learning at the university?

The SOI (Select, Organize, Integrate) model of learning (Mayer, 1996)



4 Key concepts for efficient learning

Level of processing (Craik & Lockhart, 1972; Craik & Tulving, 1975)

Strength of activation (Anderson, 1990)

Testing effect (Roediger & Karpicke, 2006)

Frogetting Curve and Distribued practice (Pashler, 2006, 2008)

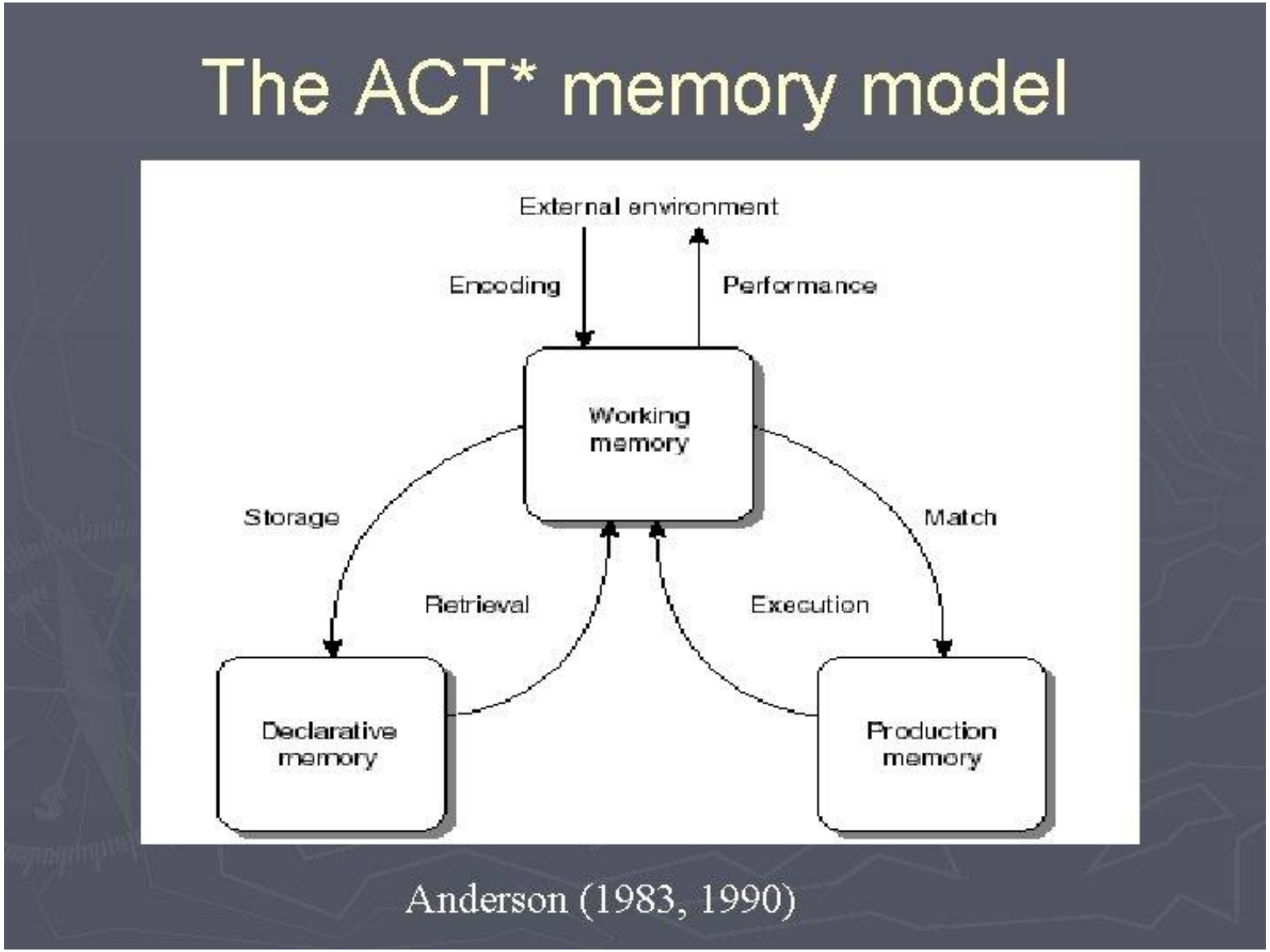
Level of processing (Craik & Lockhart, 1972; Craik & Tulving, 1975)

Depth of procesing

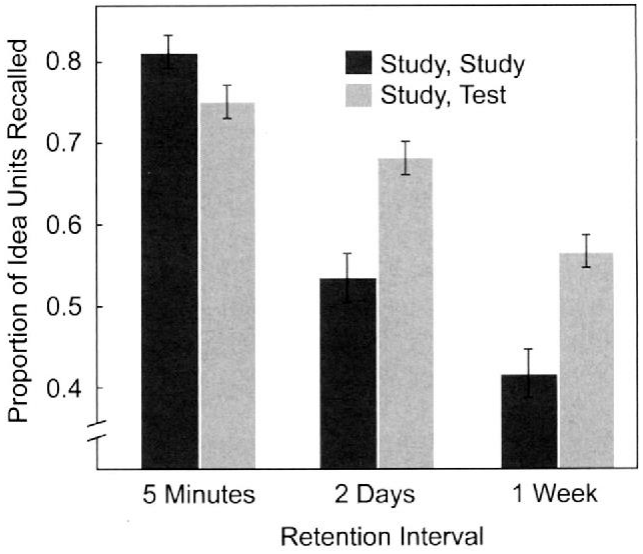
Level of processing	Type of encoding	Example of questions used to elicit appropriate encoding
Shallow processing	*Structural encoding:* emphasizes the physical structure of the stimulus	Is the word written in capital letters?
Intermediate processing	*Phonemic encoding:* emphasizes what a word sounds like	Does the word rhyme with *weight?*
Deep processing	*Semantic encoding:* emphasizes the meaning of verbal input	Would the word fit in the sentence: "He met a _____ on the street"?

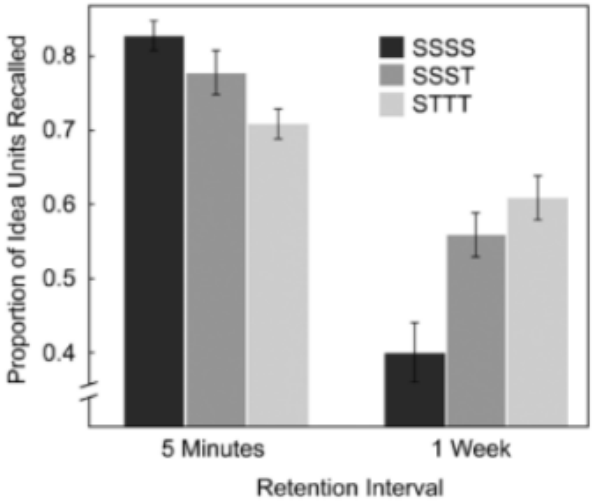
Craik & Tulving (1975)

Strength of activation (Anderson, 1990)

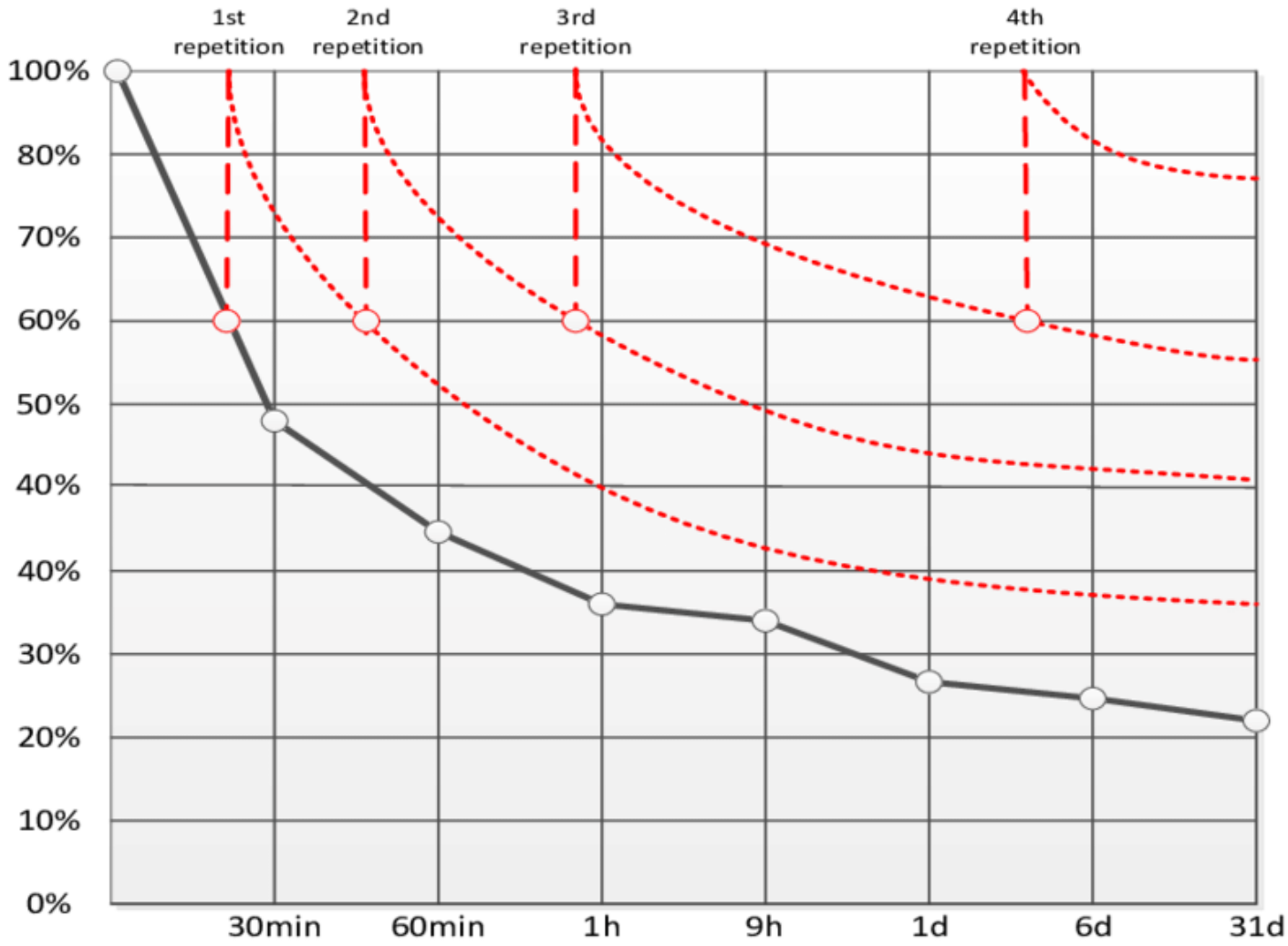


Testing effect (Roediger & Karpicke, 2006)





Frogetting Curve and Distribued practice *(Ebbinghaus, 1885; Cepeda & Pashler, 2006, Paul 2007)*



Context

01

We could expect college students to be experts at learning, studies show otherwise:

02

73% of students have difficulties to prepare for exams and learn efficiently (Rachel, 2007)

03

Most student use weak strategies if not trained explicitaly how to use proper strategies (Kiewra, 2009)

How to solve this problem ?

3R (*Read, Recite, Review*) (McDaniel, 2009)

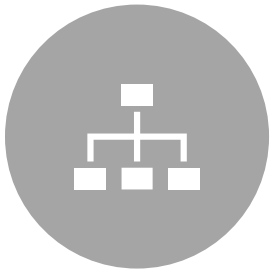
READ : EEEEEEEEE EZAEAZE EAZE

RECITE: TALK TELL

REVIEW: EEZAE EZAEZA ZAEZA

SOAR (*Selection, Organisation, Association, Regulation*) (Keiwra, 2005,2009)

SELECTION :



ORGANISATION :

ASSOCIATION :

REGULATION :

Hypothesis

	3R	SOAR
Facts	(=)	(=)
Concepts		(+)
Links Facts/Concepts		(+)

	SOAR	Notetaking
Facts	(=)	(=)
Concepts	(+)	
Links Facts/Concepts	(+)	

	3R	Notetaking
Facts	(=)	(=)
Concepts	(+)	
Links Facts/Concepts	(+)	

Methodology

- Factual Learning Assessment:

Open-ended, descriptive questions, to which a short answer is expected.

10 questions on unstudied facts, 10 questions on studied facts, 10 questions on facts close to those studied in order to avoid cueing effects. (Anderson, 2000).

- Assessment of concept learning:

Problem-solving task, e.g., asking to apply the concept to new situations, predict what would happen if one of the variables in the situation were changed, etc. (See appendices and Eberly Center for more details). 10 questions.

- Assessment of ability to connect facts to concepts studied:

Problem solving task, as above, but requiring to have integrated the facts involved and to make connections between those facts and the concepts involved. 10 questions.

Experimental design (hypothetical)

1st phase (t0)

Presentation and learning of the strategy corresponding to the group's modality.

Training with neutral material. No test. Debriefing and "correction".

2nd phase (t1 = t0 + 7 days)

The strategies and effective ways of doing things are presented again

Learning of the material that will be tested.

Short 5-minute break (essential to ensure that learning is being tested)

Test and questionnaire on the use of the strategy outside the sessions

3rd phase (t2 = t1 + 7 days)

This phase will take place one week after t1.

New test (to test the persistence of the learning) and questionnaire about the use of the strategy outside the sessions.

General debriefing (explanation of the goals of the study and presentation of all strategies. Answers to participants' questions).

Thank you for you attention