

STUDY GUIDE

1. LEARNING PRINCIPLE

The learning principle is expressed by the formulation:

GRASP by grasping & Learn from GOSSIP– the LAB approach.

This means that learning has to come through the hands, both as objects that can be grasped and as actions that can be performed. Thus a lab approach means that the learning material is brief since the learning takes place not by reading but by doing, i.e. by grasping and by moving.

For a student a learning process has five steps: *Do, name, write, reflect and communicate*.

For a teacher a learning process has six steps: *Do, name, write, reflect, communicate and design experiments*.

A teacher is able to design a learning experiment for the students, and able to learn from observing it being carried out.

The experiment is performed three times, first by the designer, then by a student communicating with the teacher, finally by two students communicating with each other while the teacher is observing. During all experiments the teacher looks for examples of cognition, both existing recognition and new cognition.

Afterwards the teacher works out a learning report reporting the three experiments observed. The report finally formulates a hypothesis based on what has been learned from observing these three experiments.

For each of the 2*4 final CATS-reports this hypothesis is validated by arranging a new learning experiment to be tested on one student and on two students; and by comparing the prediction from the hypothesis with the observations.

Example:

DO: take five matches from a matchbox and arrange them, first next to each other, then as the symbol 5.

SAY: five matches can be rearranged to the number symbol or the number icon 5.

WRITE: T = 5.

REFLECT. That five matches are called five is old cognition. That five matches can be rearranged as the number symbol 5 is new cognition. That the number-symbols are icons containing the number of matches they describe is new cognition. Also it is new cognition that this makes a fundamental difference between the ability of numbers and letters to represent the world.

COMMUNICATE. Write a postcard: Dear Paul. I have just participated in an experiment where I was asked to take out five matches from a matchbox and arrange them as the number symbol 5. All of a sudden I realised the difference between the symbols '5' and 'five', the first representing what it describes and the second representing four sounds. See you next week. Best wishes.

DESIGN LEARNING EXPERIMENT: To build the first twelve number-symbols by rearranging matches.

HYPOTHESIS. This experiment will help Peter, who has problems to understand two digit numbers. Once he tries to build a number symbol for ten, eleven and twelve, he will realise how smart it is to stop inventing new symbols and instead perform a double counting, one counting bundles and one counting unbundled.

TEST. After having finished reporting what Peter did and said, it is my impression that constructing the number icon for ten was what broke the ice for Peter. It seems as if this enabled him to separate number names from number icons, and made him later ask, 'Why don't we say one-ten-seven' instead of seventeen. It would make things much easier.' This resonates with what Piaget writes:

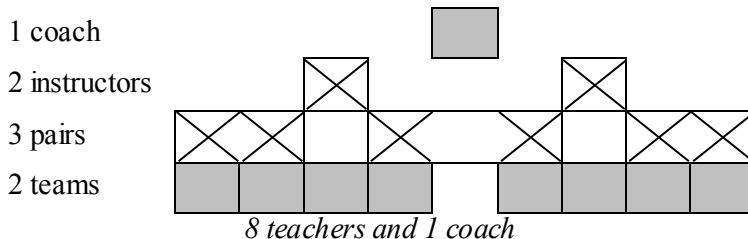
Similarly, it is possible to say that thought is well adapted to a particular reality when it has been successful in assimilating that reality into its own framework while also accommodating that framework to the new circumstances presented by the reality. Intellectual adaptation is thus a process of achieving a state of balance between the assimilation of experience into the deductive structures and the accommodation of those structures to the data of experience.

Generally speaking, adaptation presupposes an interaction between subject and object, such that the first can incorporate the second into itself while also taking account of its particularities; and the more differentiated and the more complementary that assimilation and that accommodation are, the more thorough the adaptation. (Quote from J. Piaget (1970) *Science of Education of the Psychology of the Child*, New York: Viking Compass p. 153-154).

2. PYRAMIDeDUCATION

In PYRAMIDeDUCATION 8 teachers are organised in 2 teams of 4 teachers choosing 3 pairs and 2 instructors by turn. The coach teaches the instructors instructing the rest of their team. Each pair works together to solve count&add problems and routine problems; and to carry out an educational task to be reported in an essay rich on observations of examples of cognition, both re-cognition and new cognition, i.e. both assimilation and accommodation. The coach assists the instructors in correcting the count&add assignments. In each pair each student corrects the other student's routine-assignment. Each pair is the opponent on the essay of another pair.

Each teacher pays for the education by coaching a new group of 8 teachers.



Due dates for essays:

C1: February 25

A1: March 25

T1: April 25

S1: May 25

C2: September 25

A2: October 25

T2: November 25

S2: December 25

3. HOW TO ENROL

Please fill out the enrolment form on the website. Late date November 1.

4. CERTIFICATE

PMM certificate (postmodern master).

1st year programme resulting in a 2x4 reports totalling around 40000 words: 4 educational reports on CATS1 and 4 educational reports on CATS2.

Success criteria: Acceptance by your pyramid.

2nd year programme resulting in an extended 2 paper essay totalling around 40000 words. 1 paper reporting coaching CATS1, 1 paper reporting coaching CATS2.

Success criteria: Two presentations at a teacher union conference.

The study is organised as PYRAMIDeDUCATION consisting of 8 students being coached by a 2nd year person.

Fee: Coaching one 1st year pyramid.

Successful master essays are published on MATHeCADEMY.net

A local university might recognize a PMM degree as a basis for a local master degree or a basis for a phd study.