Creative Thinking Control: Lev Landa and his Algo-Heuristics Theory

PhD Candidate, History and Sociology of Science

University of Pennsylvania
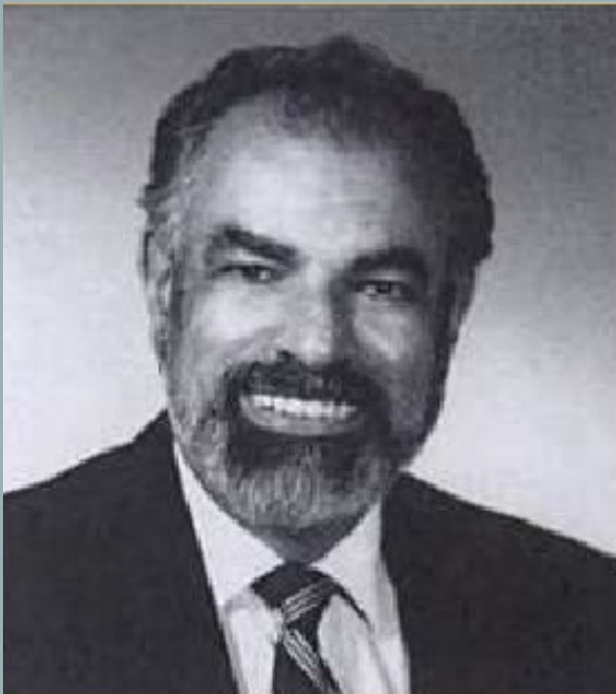
Lev Nakhmanovich Landa (1927 –1999)
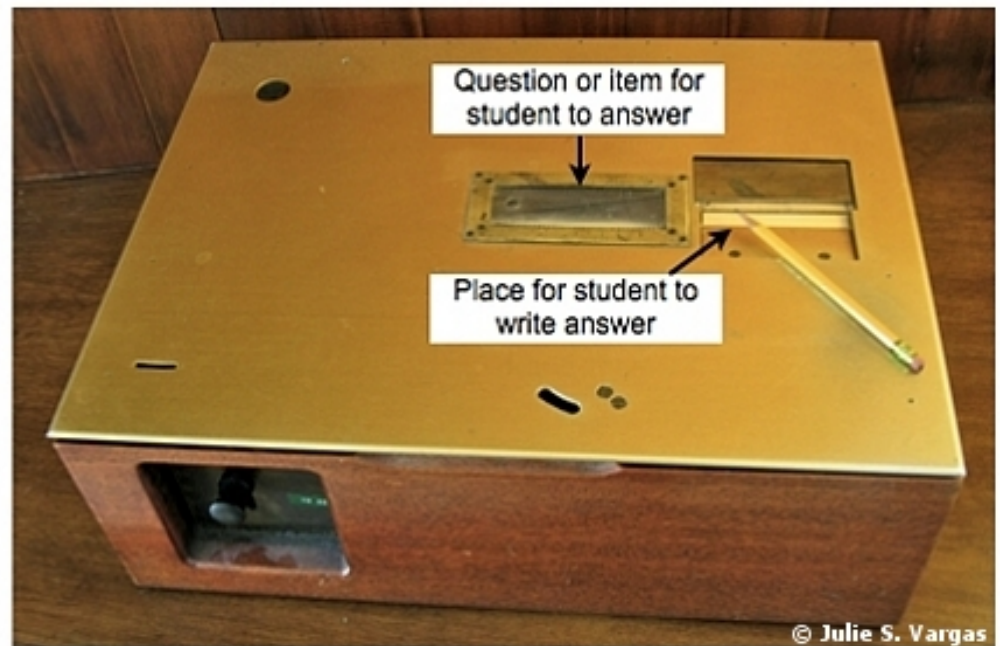
Head of the Laboratory of Programmed Instruction (LPO):
1962 – 1976

The Academy of Pedagogical Sciences (APN)

The Institute of Psychology

The LPO

B. F. SKINNER'S TEACHING MACHINE

Pie shaped "frames" and sample correct answers for comparison

Paper strip for student answers

Lever for scoring answers and advancing

Question or item for student to answer

Place for student to write answer

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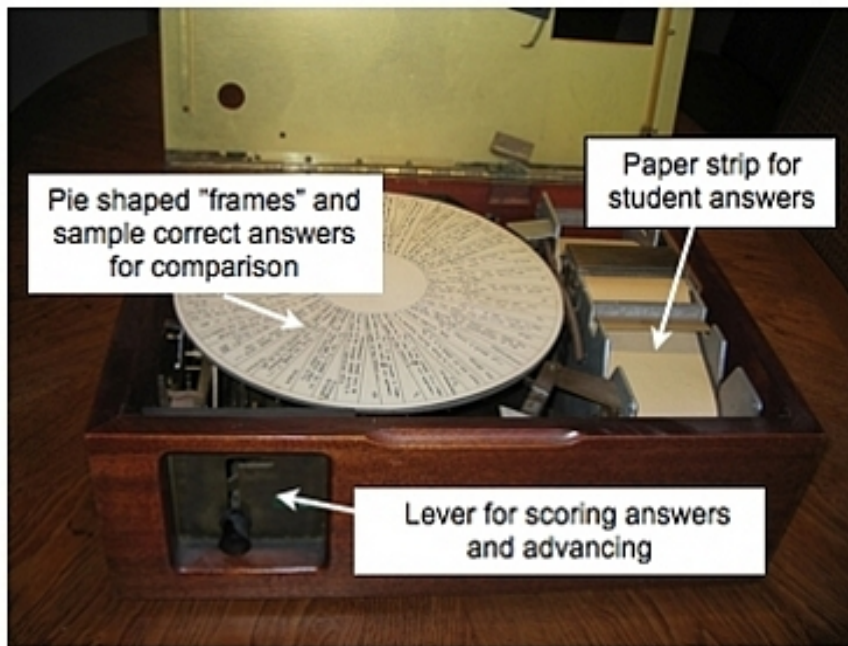
I. Creativity as an an object of Soviet psychological and pedagogical studies; the development of creative thinking as the goal of Soviet educational policies in the 1960s-1970.

II. The Algo-Heuristic Theory (AHT): synthesized Soviet and American models of problem-solving.

The Academy of Pedagogical Sciences (APN):

Self-instruction

Creative thinking ⟩ The mental qualities to be developed

Problem solving

Mikulinskiĭ, S. R. and ÎAroshevskiĭ, M. G.,
Nauchnoe tvorchestvo [Scientific Creativity]

Veniamin Noevich Pushkin (1931 – 1979)

Dmitriĭ Aleksandrovich Pospelov
(1932)

Vadim Nikolaevich Sadovskiĭ
(1934 –2012)

Эвристическое программирование
и эвристика как наука
Д. А. ПОСПЕЛОВ, В. Н. ПУШКИН, В. Н. САДОВСКИЙ

[Heuristic Programming and
Heuristics as a Science, Pospelov,
Pushkin, Sadovskiĭ, 1966.

Psychological Review
Vol. 65, No. 3, 1958
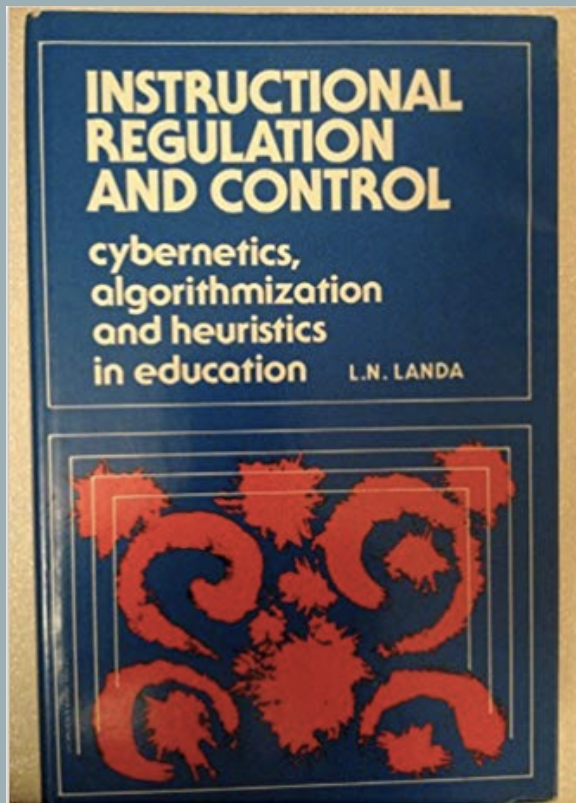
ELEMENTS OF A THEORY OF HUMAN PROBLEM SOLVING

ALLEN NEWELL, J. C. SHAW

The RAND Corporation

AND HERBERT A. SIMON

Carnegie Institute of Technology

The Algo-Heuristic Theory (the AHT), Lev Landa:

INSTRUCTIONAL
REGULATION
AND CONTROL

cybernetics,
algorithmization
and heuristics
in education   L.N. LANDA

1. Newell and Simon: heuristics are shortcuts through "a maze;" they replicate how the mind solves problems.

2. Pushkin: there are no solutions to choose from; to solve a problem, the mind constructs "a dynamic information-processing model of the external world."

The Algo-Heuristic Theory (the AHT), Lev Landa:

1. Algorithmic problems and mental procedures

2. Semi-algorithmic problems and mental procedures

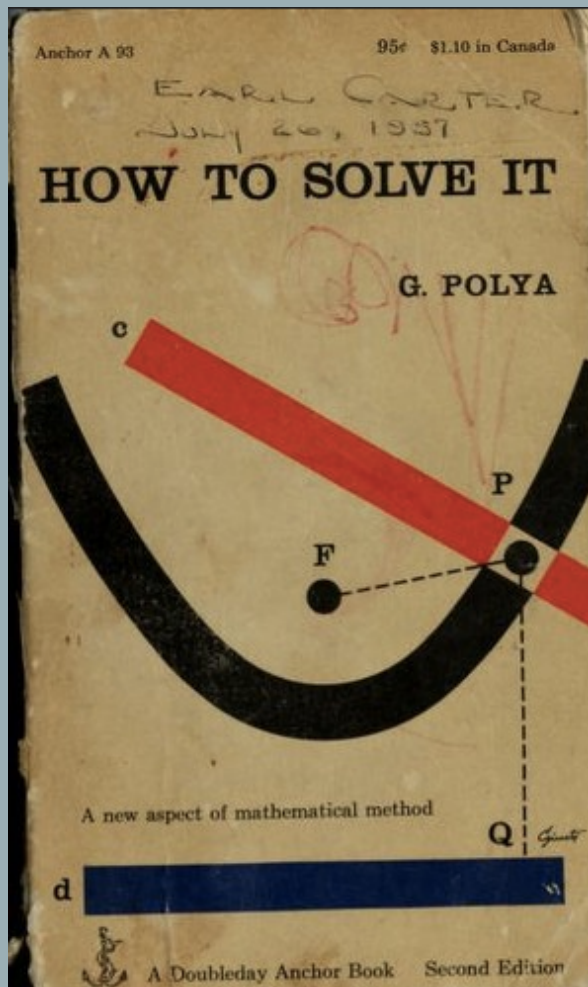**Newell & Simon**

3. Semi-heuristic problems and mental procedures

4. Heuristic problems and mental procedures

Pushkin

"a theory and methodology of teaching and learning general methods of thinking"

Landa's heuristic rules:

- Begin solving a problem by looking to see what is given and what is to be proved; separate the two.

- Draw the most direct and obvious conclusions from the given information. For example, if the problem says "given an isosceles triangle," ask yourself the following questions: "what properties of isosceles triangles do we know?" … We emphasized that this rule had to be followed in order to connect the givens of the problem with that which was to be proved.

- Now proceed to that which is to be proved, and ask yourself the question: "Which attributes are sufficient in order to prove that the given figure to be proved is such-and-such?"

ATTENTION GRABBER: LANDA TEACHING AT THE ALLSTATE LANDAMATICS CENTER IN ILLINOIS

LEV LANDA'S WORKER MIRACLES

His training system is amazing managers and upping output

Landamatics 'quickly saved $1 million' in Starnet Corp.'s billing department, says a former executive

Otis Port, "Lev Landa's Worker Miracles," *Business Week,* September 21, 1992