

WORD OF SCIENTISTS

ACADEMICIAN MAKHMUTOV - NATIONAL PROPERTY

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The purpose of the article is to show the place of problem-based teaching/learning in the modern theory of education. Academician Mirza Ismailovich Makhmutov is considered a founder of the holistic concept of problem-based teaching/ learning in the 60-80s of the twentieth century. According to Makhmutov, problem-based teaching/learning is a didactic system. This system is based on the principles of learning and its definition, combination of techniques and methods of teaching and learning. Methods and techniques are reminiscent of scientific inquiry.

Makhmutov emphasized two major elements of his system: problem-based teaching and problem-based learning. *Problem-based teaching* is defined as a classroom activity of teacher to deliberate the implementation of successive problem-based situations and to facilitate the process of student learning. Whereas *problem-based learning* is defined as learners' cognitive activity acquiring new knowledge and skills through involvement in analysis of problem situations, statement of a problem, and solving a problem by posing hypotheses, providing rationale and collecting evidence, as well as by checking the correctness and reasonableness of the solution. Therefore, the development of problem-based situations to engage learners in independent decision making is an essence of the problem-based teaching/ learning. And a problem-based situation serves an instrumental role in the theory of problem-based teaching/ learning situation appears as a cognitive conflict between learners' prior experience and new knowledge, and/or between practical/ applied and theoretical/ generalized knowledge.

Modern educational theories (at pre-school, secondary school, higher education levels) take into account both theoretical and practical experiences in the implementation of problem-based teaching/learning. Problem-based teaching/ learning's methods and techniques are applicable in the early childhood education, to the development of variety of learning and instructional technologies including but not limited to modular-based education and distance learning, to the development of students' critical thinking, to name a few. The theory of problem-based teaching/learning developed by Makhmutov is a leading theory in the perspective development of modern education.

Keywords: Makhmutov Mirza Ismailovich, organizer of science and education, theory of problem-based teaching/learning, modern education.

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Bibliography

- Makhmutov, M.I. Development of cognitive activity and independence of pupils at schools of Tatarstan. - Kazan: Tatknigoizdat, 1963. 80 p.
- Makhmutov, M.I. Questions of logical and psychological analysis of the relationship of scientific research on problem-based education. *Raising cognitive activity and independence of pupils*. - Kazan, 1970, Proc. 2, pp. 2-28.
- Makhmutov, M.I. Problem-based learning and its features. - In the book: *Questions of problem-based learning in school*. Kazan, 1970, vol. 1. P. 3-46.
- Makhmutov, M.I. Questions of the organization of problem-based learning (Teacher edition). Kazan: Publishing house of the University, 1971. 63 p.
- Makhmutov, M.I. Questions of logical and psychological analysis of the relationship of scientific research and problem-based learning. - Kazan, 1971. Vol. 96. P. 207-217
- Makhmutov, M.I. Theory and practice of problem-based learning. - Kazan: Tatknigoizdat, 1972. 522 p.
- Makhmutov, M.I. Questions of the organization of problem-based learning (Toolkit). Kazan: Publishing House of Kazan. University Press, 1972. 57 p.
- Makhmutov, M.I. Theory and practice of problem-based learning. - Kazan: Tatar Book Publishing, 1972. 550 p.
- Makhmutov, M.I. Problem training: basic questions of the theory. - M.: Education, 1975. 368 p.
- Makhmutov, M.I. Modern lesson and ways of organizing it. - M.: Knowledge, 1975. 64 p. (New in Life, Science and Technology. Series: Pedagogy and Psychology, II).
- Makhmutov, M.I. From idea to implementation: Implementation of pedagogy achievements in mass school practice. - Kazan Tatknigoizdat, 1977. 144 p.
- Makhmutov, M.I. Questions of the theory of methods of problem-developing training. - In the book: *Questions of perfection of forms and methods of general education in secondary vocational schools*. M., 1980. P. 5-60.
- Makhmutov, M.I. Problem training in school. Tallinn: Vol. Valgus, 1981. 216 p. (In Estonia Lang).
- Makhmutov, M.I. Modern lesson: Theory. M.: Education, 1981. 191 p.
- Makhmutov, M.I. Modern lesson. - M.: Education, 1985. 183 p.
- Makhmutov, M.I. Organizing problem-based learning in school. (Dialogues about education). Kaunas: Sviesa, 1983. 219 p.
- Makhmutov, M.I. Methods of problem-developmental education at secondary vocational schools: method. recommendations. M., 1983. 63 p. (APN USSR Research Institute of Vocational Pedagogy).
- Makhmutov, M.I. Pedagogical technologies of development of students' thinking. - Kazan, 1993. 88 p. Contributors: G.I.Ibragimov, M.A.Tchoshanov. Ed.: M.I.Makhmutov.