

Open Type Tasks as a Tool for Developing Creativity in Secondary School Students

Kalimullin A., Utemov V.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016, Springer Science+Business Media Dordrecht. The relevance of the present study is due to the importance of developing creativity which is considered to be the target and the result of education. Modern society demands from individuals non-standard actions and approaches, flexibility, an ability to formulate new ideas and original ways of thinking when solving urgent problems in the course of life. Facilitating the formation of a personality with a strong intellectual potential capable of creative thinking is set as one of the priorities in the federal and regional documents that determine the direction of educational institutions' development. The generalized cognitive ability to create and solve tasks is the specific feature of intelligence. The tasks are used in the educational process as a means of presentation, consolidation and acquisition of new knowledge. Thus, the aim of our research is to explore whether using the system of open type tasks can be an effective way of improving the level of creativity development in secondary school students. The main methods in this experiment are modeling the system of open type tasks and the system analysis of large samples of experimental data based on assessment according to a two-point scale of four parameters: the optimality of ideas suggested by students, the efficiency of students' reasoning, the originality of their answers and the degree of the investigation of solutions. Our experimental research made it possible to design new methods of developing creativity in secondary school students.

<http://dx.doi.org/10.1007/s10780-016-9295-5>

Keywords

Creativity, Development of creativity, Open type tasks, The criteria of open type tasks assessment

References

- [1] Altshuller, G. S. (2004). Creativity as an exact science. Petrozavodsk: Scandinavia.
- [2] Ammosova, N. V. (2000). Teaching mathematics students of pedagogical faculties to the development of the creative person of the schoolboy when teaching Maths. PhD Thesis. Astrakhan, p 18
- [3] Asadullin, R. M., Teregulov, F Sh, Koletvinova, N. D., & Egamberdieva, N. M. (2016). Fundamental and applied education—a new look. *IEJME-Mathematics Education*, 11(1), 23–33.
- [4] Bogoyavlenskaya, D. B. (2002). Psychology of creativity. Moscow: Academy.
- [5] Davydov, V. V. (1986). Problems. Moscow: Education.
- [6] Druzhinin, V. N. (1996). Psychodiagnosis general abilities. Moscow: Academy.
- [7] Elkonin, D. B. (1989). Selected psychological works. Moscow: Education.

- [8] Episheva, O. B., & Krupich, V. I. (1990). To teach students to learn mathematics: forms of educational activity. Moscow: Education.
- [9] Gavrilova, V. N. (2010). Pedagogical conditions of development of creativity in students of 7–11 grades of secondary school in the extracurricular activities in Physics. PhD Thesis. Cheboksary.
- [10] Guilford, J. (1967) Measurement of creativity. Exploration in creativity. N.Y., P. 34–47.
- [11] Guilford, J. (1969). The three sides of the intellect: Psychology of thinking. Moscow: Progress.
- [12] Krutetskiy, V. A. (1986). Psychology: textbook for students. Moscow: Education.
- [13] Makhmutov, M. I. (1975). Problem-solving training: basic questions of the theory. Moscow: Education.
- [14] Matyushkin, A. M. (2003). Thinking, learning, creativity. Moscow: Publishing House of MPSE.
- [15] Rubinstein, S. L. (2006). Fundamentals of general psychology. Saint Petersburg: Peter.
- [16] Sabirova, E. G., & Zakirova, V. G. (2016). Formation of mathematical terminology in junior school children. IEJME-Mathematics Education, 11(6), 1787–1795.
- [17] Strahov, I. V. (1968). The Psychology of creativity. Saratov: Publishing House of Saratov.
- [18] Sukhomlinsky, V. A. (1987). Bibliography. Moscow: Rad.
- [19] Taylor, C. W. (1988). Various approaches to and definitions of creativity. The nature of creativity (pp. 99–126). Cambridge: Cambridge University Press.
- [20] The Ministry of Education and Science of the Russian Federation (2010). Federal state educational standard of general education: Feder. law RF dated December 17, 2010. No 1897-FZ.
- [21] Torrance, E.-P. (1964) Guiding creative talent. W.J., p 112.
- [22] Tunick, E. E. (1998). Diagnosis of creativity, torrance test, methodological guide. Saint Petersburg: Imaton.
- [23] Unt, I. E. (1990). Characterization and differentiation of training. Moscow: Education.
- [24] Wollach, M. A., & Kogan, N. A. (1965). A new look at the creativity— intelligence distinction. Journal of Personality, 33, 76–79.
- [25] Zakirova, V. G., & Shilova, Z. V. (2016). Integrative connection of mathematics and economics. IEJME-Mathematics Education, 11(8), 3021–3036.
- [26] Zankov, L. V. (1999). Selected pedagogical works. Moscow: Pedagogy House.
- [27] Zinovkina, M. M. (1989). Formation of creative technical thinking and engineering skills in students of technical colleges. PhD Thesis. Moscow.