

TEACHERS' BELIEFS ABOUT THE NATURE OF MATHEMATICS, MATHEMATICS LEARNING, AND MATHEMATICS TEACHING

Rashidova G. M.

134th school, Tashkent city, Uzbekistan

gavxarxon.rashidova@mail.ru

As in the findings of earlier studies (e.g., Alamu, 2010; Cross, 2009; Thompson, 1984; Whitehouse, 2003), teachers in this study were found to hold beliefs about the nature of mathematics, mathematics learning, and mathematics teaching that reflect a combination of traditional and constructivist perspectives to varying degrees.

In most cases, as also found by Raymond (1997), the teachers' beliefs about the nature of mathematics were more traditional than their beliefs about mathematics learning and teaching. The majority of the teachers viewed mathematics as a subject with a fixed body of knowledge that consists mainly of rules, procedures, and computations. For these teachers, doing mathematics involves applying mathematical rules, algorithms, and computations. Only three teachers indicated the belief that mathematics was dynamic, a way of thinking, and a problem solving subject.

Unlike the teachers' beliefs about the nature of mathematics, in general, the teachers had a mix of traditional and constructivist beliefs about mathematics learning and mathematics teaching. All eight teachers believed that doing drill exercises to master skills was important in learning mathematics. For them, a clear and thorough explanation of rules, procedures, and demonstration of worked examples was necessary before assigning students any mathematical task. Despite their traditional beliefs, the majority of the teachers believed, to varying degrees, that problem solving, use of manipulative materials, students' active engagement in learning activities, exploring and investigating mathematical ideas, and collaborative group work were effective learning strategies. They also believed that providing activities that encouraged students' active participation and investigation of mathematical ideas was an important teaching strategy. However, the responses of some teachers indicated their lack of understanding of constructivist use of teaching strategies such as group work and problem solving.

Among the three categories of beliefs, teachers' beliefs about mathematics learning and mathematics teaching are most closely related. Teachers who held constructivist beliefs about mathematics learning had similar views about mathematics teaching and vice versa.



References

1. Karl Rosenkranz, Pedagogics as a System, Project Gutenberg 2009.
2. Wolfgang Brezinka, Philosophy of Educational Knowledge Philosophy and Education, Springer-science, business media, ISBN 978-94-010-5141-5, 1992.
3. Saltanat K. Abildina and others ,Pedagogical System of Future Teachers' Professional Thinking Culture Formation, INTERNATIONAL JOURNAL OF ENVIRONMENTAL & SCIENCE EDUCATION 2016, VOL. 11, NO. 10, 3562-3574.

