Cross-Curricular Integration of Knowledge in Mathematics at the Primary School Level

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Cross-curricular integration is one of the key concepts of modern orientations of education development because students who are involved in elementary school education have to gain competencies that go beyond the traditional boundaries between subjects so that they will be able to participate in the society of knowledge. It is important in the transfer of knowledge that educational institutions are also aware of the extracurricular circumstances in which students work and take these circumstances into account when teaching. Students are motivated by the opportunity to use the gained knowledge to solve more complex problems and create new solutions. In recent years, most European countries have renewed mathematics curricula (including Slovenia in 2011) by giving more emphasis to mathematical competencies, knowledge, and skills, as well as cross-curricular connections, because mathematical skills are more and more perceived as a basis for learning other school subjects. Connecting mathematics with other disciplines and solving authentic problems give mathematical learning real meaning because students feel the importance of building and upgrading mathematical concepts. At the same time, we introduce students to research and problem solving from everyday life. In this paper, we present and substantiate the cross-curricular approach to teaching mathematics which provides thinking at higher cognitive levels – the use, analysis, and generalization – while the subject approach builds and deepens the knowledge of each subject. Based on an educational experiment in which we introduced cross-curricular integration of mathematics with other school subjects, we ascertained that the students of the experimental group achieved better results at higher taxonomic levels in comparison to the students of the control group. We can conclude that cross-curricular integration in the taxonomic sense is a synthesis of knowledge of different disciplines which is reflected in a new level of integration of knowledge and understanding.