

# DAROVITI UČENICI KAO KONSTRUKTORI MATEMATIČKIH ZNANJA

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U ovom radu je dat prikaz konkretnih nastavnih metoda, primenjenih u radu Odeljenja učenika sa posebnim sposobnostima za matematiku u Prvoj kragujevačkoj gimnaziji, kao i u radu sa polaznicima Centra za talente, Centra za obrazovanje Kragujevac.

Radi se o učenju za XXI vek, koje pored konstrukcije znanja u nastavnom predmetu kao što je matematika, uključuje i saradnju, rešavanje realnih problema, komunikaciju i samoregulaciju kao i primenu IKT-a u učenju. U prikazu radova učenika primenjena je metoda ilustracije i demonstracije, kao sredstvo za bolje usvajanje veština, nakon prethodno usvojenog koncepta. Uspešnost timova je konkretno praćena poligonalnim linijama na uzastopnim časovima utvrđivanja i vežbanja. Metodom pisanih radova prikazani su rezultati saradnje na Wakelet dokumentu. Primenom metode korak po korak, predložena je modifikovana verzija Kahoot kviza bez primene mobilnih telefona, kako bi učenici mogu da napreduju svojim tempom. Ovde je isto tako prikaz primene metode pisanih radova u rešavanju pet Lavirint zadataka po stanicama. Projektna metoda je prisutna u radovima učenika na eTwinning projektu „Gama za sve – učenje matematike podržano igram“a, kroz primere igara u vizuelnom programskom jeziku Skreč, kreiranjem Escape Room-a u Genially alatu, ili primenom Power Point prezentacije. Tu je i primena metode usmenog izlaganja na času sistematizacije, kojom su učenici svojom kolekcijom Quizalize kviz pitanja maštovito i kreativno povezali više nastavnih jedinica teme Kvadratna jednačina i kvadratna funkcija i na originalan način približili nastavne sadržaje svojim vršnjacima. U okviru pet naučno-istraživačkih radova učenika, polaznika Centra za talente, CSU Kragujevac, nagrađenih na Državnom takmičenju talentovanih učenika za naučnu disciplinu matematika, predstavljena je originalnost i maštovitost učenika.

Primenom navedenih nastavnih metoda, talentovani učenici postaju kreatori svog znanja.

Primenom novih alata razvijaju digitalne veštine, razvili svoja umeća i navike, jačaju saznajne i stvaralačke sposobnosti i samostalno rešavaju probleme.

Izveštaji o ovim aktivnostima su dostupni na stranicama bloga Matema momenti.

**Кључне речи:** *NASTAVNE METODE /ISTRAŽIVAČKI RAD /KREATIVNOST/MATEMATIKA/*

# **GIFTED STUDENTS KNOWLEDGE CONSTRUCTION AND MATHS AS A SCHOOL SUBJECT INVOLVED IN IT**

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This paper presents concrete teaching methods, applied in gifted students classes from The First Grammar School of Kragujevac, Serbia and with participants of the Center for Talents, Center for Education, Kragujevac.

It is about learning for the XXI century which, in addition to the construction of knowledge in the subject such as mathematics, also includes cooperation, real problems solving, communication and self-regulation, as well as application of ICT in learning. The method of illustration and demonstration was applied in the display of students work, as a tool for better skill acquisition, after the previously adopted knowledge concept. The success of the teams was specifically tracked during two successive lessons. The results of the collaboration on the Wakelet document was presented using method of written works. Applying the step-by-step method, a modified version of the Kahoot quiz without the use of mobile phones is proposed so that student have made progress on their own pace. Here is also a presentation of application of the written works method of solving five Labyrinth tasks by stations. The project method is presented in students works in eTwinning project „Gamma for all – learning mathematics supported by games“ through the examples of games in the visual programming language Scratch, or by creating an Escape room in Genially tool, or using the Power Point presentation. There is also the application of the conversation method in systematization lesson, working in pairs, used Quizalize series of self made quizzes imaginatively and creatively connected several teaching units of the topic Quadratic equation and quadratic function, and in an original way brought the teaching content closer to their peers. The originality and imagination of the students work were presented in the five scientific-research works, by the Center for talents students, CSU Kragujevac, awarded at the National Competition of Talented Students for the scientific discipline of mathematics.

By applying the mentioned teaching methods, talented students have become creators of their knowledge. Using new tools, they have developed digital skills, their skills and habits, they have strengthened their cognitive and creative abilities and have solved problems independently. These activities are available on the teaching blog [matemamomenti.com](http://matemamomenti.com).

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