KA1 Mobility Projects

Teaching Mathematics via Educational Games

Abstract

Erasmus KA1+ training courses kee teachers up-to-date on new research on how students learn, emerging technology and educational tools for the classroom, new curriculum resources, and more. In this activity is presented the implementation of game-based learning in Mathematics, which was the topic of my Mobility Training Course. This scenario is based on teaching and learning mathematics through Games. The educational software of Variant Limits Triseum https://triseum.com/variant-limits/ is an interactive learning process in Mathematics.

Introduction_Description of Educational Game Triseum Variant Limits

Through the Zones of Game Variant Limits based on Bloom's Taxonomy of Educational Objectives, teachers could access a multi-tiered scale to express the level of expertise required to achieve each measurable student outcome.

Visual graphs provide clues that words and equations don't. For example, it might take middle school or high school students several minutes to read, digest, interpret and map a word problem. With graphical representations they can quickly draw conclusions. Graphs show trends, gaps and clusters, and compare multiple data sets at once, often accommodating large sets of data.

This activity referred to Zone 2 (Concept of Limits Law) Educational Environment of Zone 2

Objectives

- Increasing activity of students in learning mathematics
- Changing students' behavior
- Achieving new skills (analytical critical thinking , problem solving, communication skills, team working)
- Acquiring new knowledge

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Methodology

Students are divided in two basic groups. The first group work (out of the school sessions) on Puzzles and Zones of Triseum Variant Limits. The second group haven't experienced Triseum based learning and knowledge in limits of functions. In the classroom, the first group take the role of mentor for the second, they demonstrate and present mathematical knowledge through print screens of Triseum Game. Both groups collaborate, discuss and take an active role in the educational approach in learning by their classmates the law of limits in functions. The progression is supported by the teacher in the classroom, who gives directions for resuming the basic results and conclusions in the limits of the law. In this scenario students play Triseum Variant Limits game, they explore, investigate to acquire mathematical knowledge, search for further exercises and theory, give explanations, resume the results and finally take the role of mentor for their classmates.

Additional Educational Values

- ➢ Flipped Classroom: students master basic concepts of the topic at home. Time spent in classroom is used to reflect, discuss, develop the topic.
- ➢ Game Based Learning & Gamification: learning is mixed with games or with game mechanism
- ➢ STEM Learning: Increased focus on Science, Technology, Engineering, Mathematics subjects in the curriculum
- ➢ Edutainment: playful learning. Learning while having fun
- ➢ Personal Learning Environment: the online learning environment they engage with is tailored to their personal needs

Tools and Resources

- Download the software Variant Limits of Triseum https://triseum.com/variant-limits/
- Download the geogebra software (www.geogebra.org)
- Projector
- eBook as educational resource

Learning Activities

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Results

Video of interview with sample of students about measuring the impact of educational games

Photographs of the Learning Process

Students' Demonstration