



Teaching high-school Geoscience through a group-based activity: the Geotrivia experiment

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Geotrivia is an educational game which aims at the enhancement of geoscience teaching in secondary education, through an interactive group-based activity. As behavioural teaching methods no longer excite students in a multitask society, new approaches should be implemented to keep up with novel learning methodologies and team-based techniques. Thus, the main aim of the experiment was to come up with an alternative learning process on geology and geography in order to upgrade and attract more students to Geosciences. Geotrivia is based on the techniques of motivation (competition to be the winner) and enjoyable educational time (it is funny to play a game) in terms of team-based student collaboration. Pedagogical aims of Geotrivia consist of team-based work, independency, autonomy and initiative, active participation, student self-evaluation and metacognition.

Geotrivia is a card game, consisting of about 150 playing cards, a whistle and an hourglass. Each playing card contains a geology- or geography-related question and the answer to the question is given in the lower part of the card. Class students are divided in about 4 groups of about 5 students each. The aim of each group is to collect as many cards as possible. The hourglass is flipped and a member of the team takes the pack of cards and uses it to ask questions to his team; the other members have to answer as many questions. The team wins a card when they give a correct answer. The game is played at the end of each curriculum unit; a comprehensive version of the game is held at end of the school year. Most –but not all- questions are based on the course syllabus, which deals with the geology and geography of Europe at junior high school level (e.g. what is the cause of high seismicity in Greece?). Accordingly, Geotrivia questions can be adjusted to each country school book of geology – geography at any grade.

To evaluate the results of Geotrivia, we used the methodology of pretest and posttest, an experimental group of about 50 students, which undertook Geotrivia and a control group of about 50 students, which underwent the usual teaching process.

After applying Geotrivia during the last school year, the results obtained were:

1. Students accepted Geotrivia enthusiastically and realized that knowledge can be pleasantly obtained.
2. Students' participation was active and voluntary.
3. Students adhered to the rules of the game by themselves with almost no interference by the teacher, increasing their autonomy and responsibility towards the learning process.
4. Team-based work took place successfully. Team spirit and collaboration were ultimately cultivated, parameters that enforce the learning process.
5. Geotrivia appeared to be a pleasant way for chapter revision. Students were motivated to study for the next game and not for the next test, thus mastering the knowledge voluntarily and not under the fear of tests or grades.
6. Students were able to self-evaluate their knowledge through an enjoyable procedure.
7. Students had the opportunity to reach the level of metacognition purposely.
8. At the end-term exams the majority of students achieved surprisingly high grades.

Therefore, the pilot run of Geotrivia has shown that it is a high standard learning process with promising results for geoscience education.