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Games As Educational Tools in eARTh Science: MAREOPOLI and THE ENERGY CHALLENGE.

Sara Garvani (1,2), Marina Locritani (1), Francesca di Laura (1), Mascha Stroobant (3), and Silvia Merlino (4)

(1) Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy (sara.garvani@ingv.it), (2) Historical Oceanography Society, Villa Pezzino, Via Pezzino Basso, n. 2, 19020 Fezzano (SP), Italy., (3) Distretto Ligure delle Tecnologie Marine (DLTM), Via delle Pianazze, n. 74, 19136 La Spezia, Italy., (4) Consiglio Nazionale delle Ricerche - Istituto di Scienze Marine, La Spezia, Italy.

Research and researchers do have an important role in sustainable green and blue economy. It is also clear that outreach activities are fundamental to improve societal perception of Science past and present results and future insights or consequences and that is primary to change people's mentality. This is one of the main goals of the Scientific Dissemination Group (SDG) "La Spezia Gulf of Science", made up by Research Centres, Schools and Cultural associations located in La Spezia (Liguria, Italy). However, communicating scientific results means also improving educational methods: introducing tight relationship with artists (especially graphic designers), can produce unusual approaches and translate concepts in images which everyone can understand also under an emotional point of view. Images have a fundamental role for understanding and learning simple and less simple concepts, for example general public and high School students can be reached by interactive conferences with live speed painting (Locritani et al., 2016), and kids can be involved in interactive games. And games, especially, can reduce learning curves, since playing itself creates a natural forum for exchanging ideas and reflecting on natural phenomena and human impacts outside of class hours. Games, and the entertainment value of play, have the ability to teach and transform (Gobet et al., 2004).
In this work we'll present two different games that raised from the collaboration between researchers and artists: MAREOPOLI and THE ENERGY CHALLENGE.
MAREOPOLI (The City of Tides) is a simplified adaptation of the famous board game Monopoly, and consist of 36 spaces: 16 important historical and coastal cities having relevant tide phenomena, 8 Unexpected Events spaces (questions are asked on Modern Oceanography), 8 Curious Facts spaces (players receive information on historical records) and 4 corner squares: GO, (Blocked) in Limestone Grotto/Just Visiting, Free Beach Club, and Go to Limestone Grotto. Players move around the game-board attempting to take control of all 16 cities, with the goal of acquiring information about scientific facts related to tides, climate change and historical oceanographic records. A city is conquered by answering correctly to specific questions.
THE ENERGY CHALLENGE (Bussei et al., 2002) is a role-playing game aimed to explain concepts related to energy and one of the deliverables of the FP6 project WESPA (2002-SCIENCEANDSOCIETY-2). It makes use of appealing playing cards that, through eye-catching images, exemplify the different forms and sources of energy and its transformation processes. The game has very simple rules and has been designed as an educational team game, to be used especially in schools, both primary and secondary. Players are organized in two teams, according to their assigned cards, and have to choose a game strategy that optimizes the available resources, their use and the general environmental sustainability.

References

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