

## Effectiveness of Virtual Escape Room in Biomimicry Producing Environmentally Friendly Attitudes and Learning

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**Abstract :** This research follows the implementation of a virtual educational escape room (VEER) in Biomimicry for high school students (n=90) in order to expose them to the innovative field of biomimicry. The main idea behind biomimicry is that many of the wondrous solutions found in nature may be imitated by human technology and harnessed to different needs so that naturally occurring processes can become a source of knowledge for sustainable solutions. The escape room was developed by student trainers in order to teach Biomimicry through games. The room includes a variety of riddles, puzzles and movies in order to teach interdisciplinary subjects and different skills required in the 21st. The purpose of the study was to examine the impact of the gaming experience on students' attitudes toward the learning process and their attitudes toward nature as derived from a virtual escape room game centered on the theme of biomimicry. Three instruments were used: (1) a pre-test and a post-test to measure pupils' increase in knowledge, (2) a survey to collect their opinions (3) an interview with the pupils. The learning experience within the game influenced the pupils in both emotional and cognitive dimensions, thereby enhancing their motivation and competence. From the results, we learned that the players had positive attitudes towards the game and a high sense of flow. We also found evidence that the escape room contributed to the internalization of new knowledge and values, such as respect for nature and the awareness of nature's importance. Furthermore, the players also reported that they developed learning skills. We conclude that virtual escape rooms are a new tool for assembling new knowledge for the players. The room increased curiosity and engagement to learn new content. However, in order to achieve maximum benefit, we need good infrastructure in addition to interesting and challenging tasks.

**Keywords :** biomimicry, virtual escape room, attitudes, learning

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